THERMO KING

Installation Manual-A

Trailer Edition
SPECTRUM™ DE SR-2
Multi-Temperature Systems

TK 53542-2-IM (Rev. 7, 06/12)

Ingersoll Rand

Installation Manual—A

Trailer Edition
SPECTRUM™ DE SR-2
Multi-Temperature Systems

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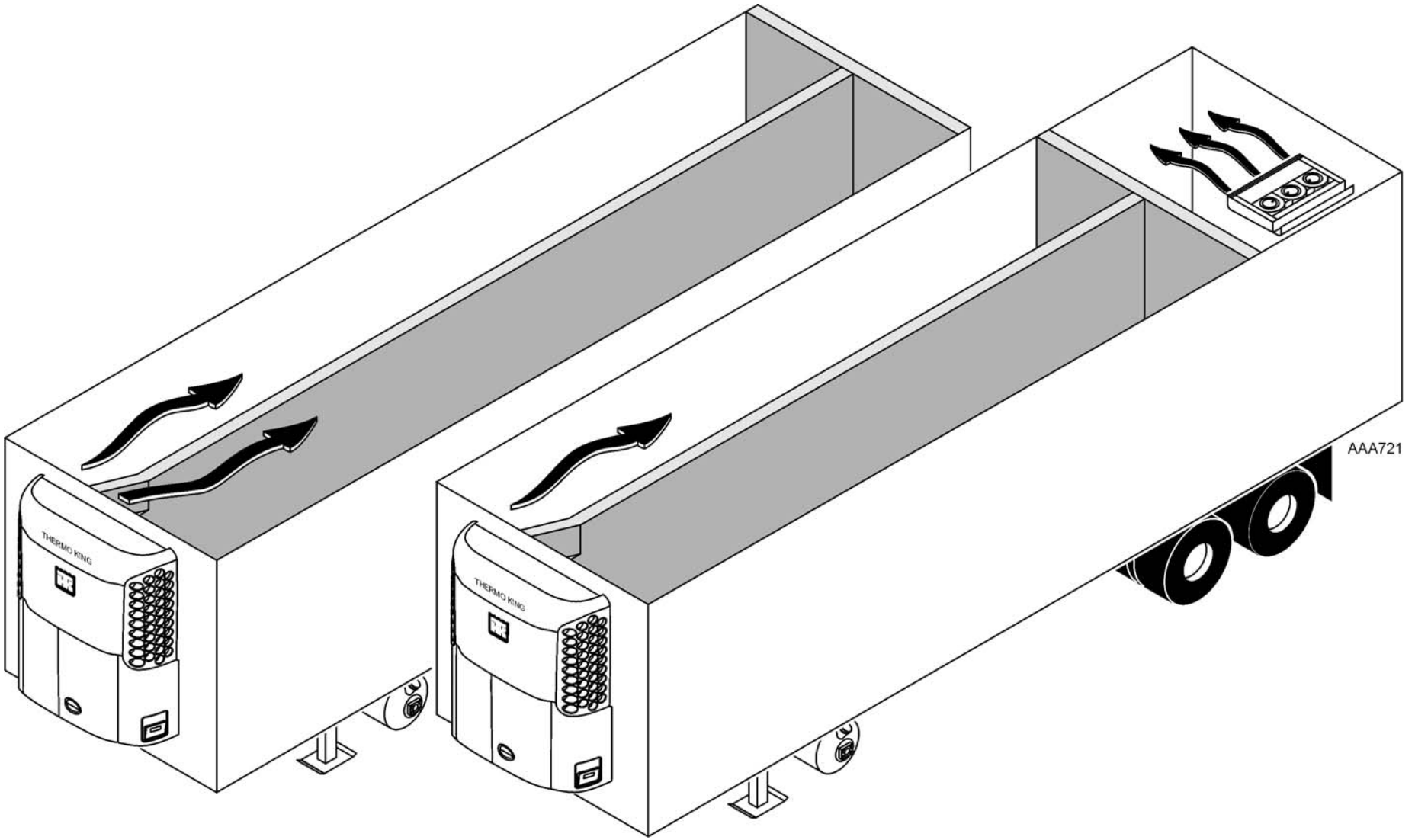
Release History

Released	08/06
Rev. 1	(01/07) Updated art to show correct 8 wire remote controller harness, multiple door switch harness with diodes and CargoWatch sensor.
Rev. 2	(04/09) Updated the battery information page 20 and added new fuel tank bracket installation instructions pages 34-39.
Rev. 3	(01/10) Pages 62-63; Added new heavy duty battery hold down bracket.
Rev. 4	(04/11) Pages 12-13; added min/max dimensions for unit mounting bolts, page 14; updated unit dimension, pages 20-23 and 56; added “Contact your Thermo King Dealer for specific part number”, page 20; added Standard Display, Fuel Combo and Triple Combo Status Light Dimensions, page 21; add flush mounted Status Light dimensions, pages 34-37; added 50 gallon Ultrasonic Fuel Level Sensor (USFLS) tank information, page 40; changed sensor harness wire code from 8F to 2PL and added “Thermo King recommends a conduit or chase with 1.00 in (25.4 mm) I.D. to accommodate the electrical harness”., page 42-43; added details on how to install and connect Status Lights, page 54-55; changed maximum gap from 19mm (0.75”) to 12.7mm (0.50”), pages 58-59; removed reference to European Applications.
Rev. 5	(11/11) Page 7 - Revised Safety Precautions to include new Battery Installation and Cable Routing warnings and cautions.
Rev. 6	(01/12) Page 34 -Added information about installing the optional Ultrasonic Fuel Level Sensor (UFLS) into the fuel tank.
Rev. 7	(06/12) Page 56 - Added note about installing CargoLink wireless door switches.

SPECTRUM DE SR-2 Multi-Temperature Systems



Introduction

Installation Manual-A was written to assist with the installation of the **Thermo King SPECTRUM DE SR-2** refrigeration systems onto trailers specifically designed and built for refrigerated applications.

Due to its complexity, you should not attempt this installation unless you:

- are an experienced mechanic.
- can safely lift 34 kilos (75 lbs.)
- are certified or trained in the repair and maintenance of diesel powered refrigeration systems.
- have a basic understanding of electricity and electrical wiring.
- have the necessary tools and equipment to complete the installation.

Installation Manual-B was written to complete the installation of the **Multi-Temperature** systems with **Spectrum** remote evaporators.

This manual is published for informational purposes only. Thermo King makes no representations warranties express or implied, with respect to the information recommendations and descriptions contained herein. Information provided should not be regarded as all-inclusive or covering all contingencies. If further information is required, Thermo King Corporation Service Department should be consulted.

Thermo King's warranty shall not apply to any equipment which has been "so installed, maintained, repaired or altered as, in the manufacturer's judgment, to affect its integrity."

Manufacturer shall have no liability to any person or entity for any personal injury, property damage or any other direct, indirect, special, or consequential damages whatsoever, arising out of the use of this manual or any information, recommendations or descriptions contained herein.

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Safety Precautions

The ⚠ symbol appears next to a point that is particularly important:

⚠ ***DANGER: Addresses a circumstance that, if encountered, will lead to death or serious injury***

⚠ ***WARNING: Addresses a circumstance that, if encountered, might lead to death or serious injury.***

⚠ ***CAUTION: Addresses a circumstance that, if encountered, may cause damage to equipment or minor injury.***

⚠ ***DANGER: Never operate the unit with the discharge valve closed because it could cause the compressor to explode, causing death or serious injury.***

⚠ ***DANGER: Never apply heat to a sealed refrigeration system or container because it could explode, causing death or serious injury***

⚠ ***DANGER: Fluorocarbon refrigerants, in the presence of an open flame or electrical short, produce toxic gases that are severe respiratory irritants capable of causing death.***

⚠ ***DANGER: Be careful when working with a refrigerant or refrigeration system in any enclosed or confined area with a limited air supply (i.e., a trailer, container or the hold of a ship). Refrigerant tends to displace air and can cause oxygen depletion which may result in death by suffocation.***

⚠ ***WARNING: Always wear goggles or safety glasses. Refrigerant liquid, refrigeration oil, and battery acid can permanently damage the eyes (see First Aid under Refrigeration Oil).***

⚠ ***WARNING: Keep your hands away from fans and belts when the unit is running. This should also be considered when opening and closing the compressor service valves.***

⚠ ***WARNING: Make sure gauge manifold hoses are in good condition. Never let them come in contact with a belt, fan motor pulley, or any hot surface.***

⚠ ***WARNING: Make sure all mounting bolts are tight and are of correct length for their particular application***

⚠ ***WARNING: Never drill holes in the unit unless absolutely necessary. Holes drilled into the unit may weaken structural components. Holes drilled into electrical wiring can cause fire or explosion.***

⚠ ***WARNING: When using ladders to install or service refrigeration systems, always observe the ladder manufacturer's safety labels and warnings. A work platform is the recommended method for installations.***

⚠ ***WARNING: Exposed coil fins are very sharp and can cause painful lacerations.***

Safety Precautions (continued)

Battery Installation and Cable Routing

WARNING: Improperly installed battery could result in a fire or explosion! A Thermo King approved battery must be installed and properly secured to the battery tray.

WARNING: Improperly installed battery cables could result in fire or explosion! Battery cables must be installed, routed and secured properly to prevent them from rubbing, chaffing or making contact with hot, sharp or rotating components.

WARNING: Do not attach fuel lines or any additional wiring harnesses to the battery cables as this could cause an electrical fire!

CAUTION: Do not connect other manufacturer's equipment or accessories to the Thermo King unit. This could result in severe damage to equipment and void the warranty!

CAUTION: Set all unit electrical controls to the OFF position before connecting battery cables to the battery to prevent unit from starting unexpectedly and causing personal injury.

CAUTION: Always wear protective clothing, gloves and eye wear when handling and installing batteries. Battery acid can cause serious burns when exposed to eyes or skin. If battery acid contacts skin or clothing, wash immediately with soap and water. If acid enters your eye, immediately flood it with running cold water for at least twenty minutes and get medical attention immediately.

CAUTION: Always cover battery terminals to prevent them from making contact with metal components during battery installation. Battery terminals grounding against metal could cause the battery to explode.

Refrigerant

WARNING: Although fluorocarbon refrigerants are classified as safe refrigerants, certain precautions must be observed when handling them or servicing a unit in which they are used. When released to the atmosphere in the liquid state, fluorocarbon refrigerants evaporate rapidly, freezing anything they contact.

First Aid

FROST BITE: In the event of frost bite, the objectives of First Aid are to protect the frozen area from further injury, to warm the affected area rapidly and to maintain respiration.

EYES: For contact with liquid, immediately flush eyes with large amounts of water and get prompt medical attention.

SKIN: Flush area with large amounts of lukewarm water. Do not apply heat. Remove contaminated clothing and shoes. Wrap burns with dry, sterile, bulky dressing to protect from infection/injury. Get medical attention. Wash contaminated clothing before reuse.

INHALATION: Move victim to fresh air and use CPR or mouth-to-mouth ventilation, if necessary. Stay with victim until arrival of emergency medical personnel.

Refrigeration Oil

WARNING: Avoid refrigeration oil contact with the eyes. Avoid prolonged or repeated contact of refrigeration oil with skin or clothing. Wash thoroughly after handling refrigeration oil to prevent irritation.

First Aid

NOTE: In case of eye contact, immediately flush with plenty of water for at least 15 minutes. CALL A PHYSICIAN. Wash skin with soap and water.

Trailer Requirements

DANGER: The front trailer must be structurally strong enough to support the weight of the refrigeration unit!

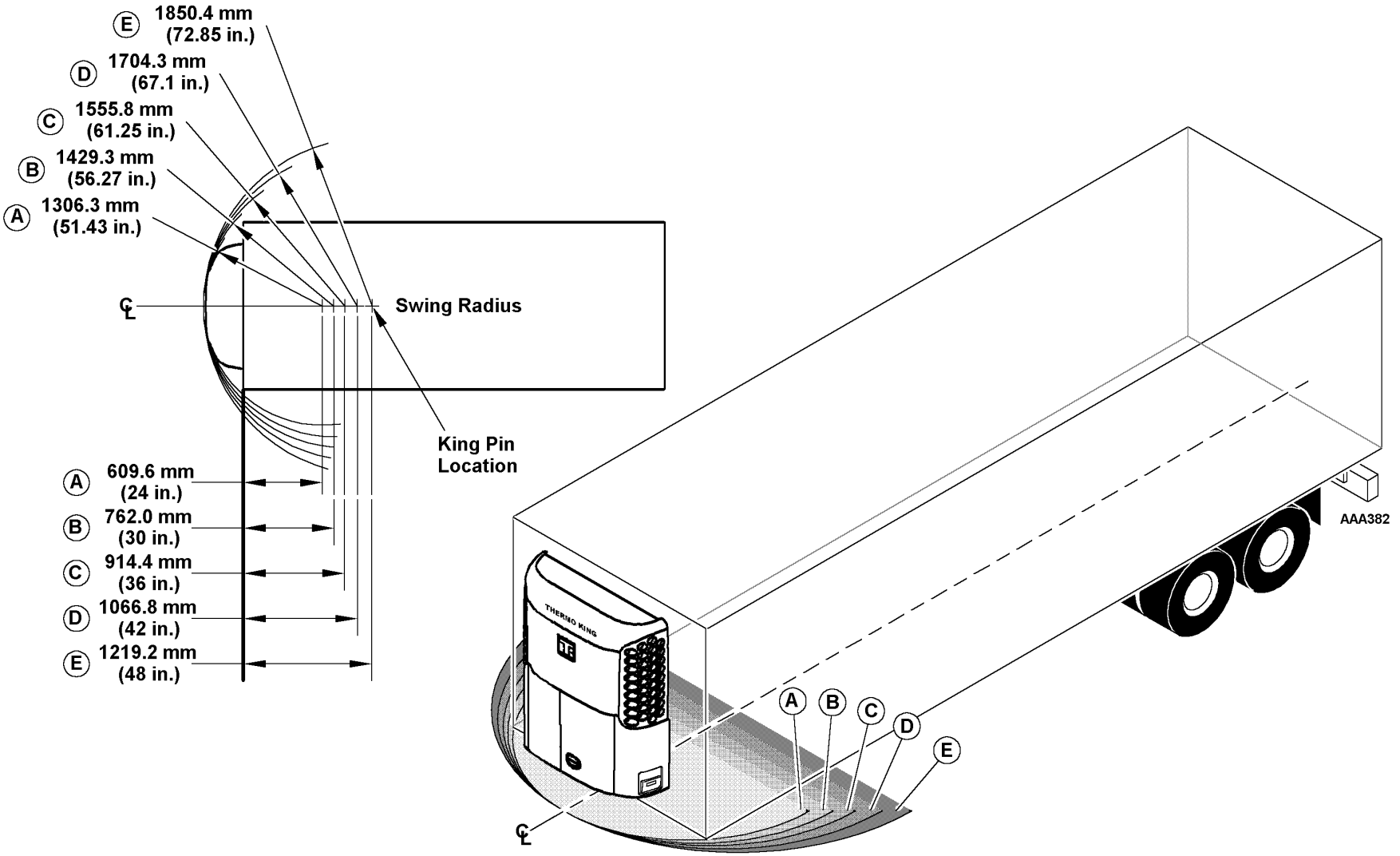
Approximate Weight

SPECTRUM DE (1670 lbs.) to 885 kg (1950 lbs.)

CAUTION: The minimum distance from the king pin to the front of the trailer must be 1025 mm (40.35 in.) or severe damage to the equipment will result. VERIFY THIS DIMENSION BEFORE INSTALLING UNIT!

CAUTION: The minimum clearance required for the swing radius must be 1664.2 mm (65.520 in.) or severe damage to the equipment will result. VERIFY THIS DIMENSION BEFORE INSTALLING UNIT!

Trailer Requirements



Evaporator Opening Requirements

Evaporator Opening

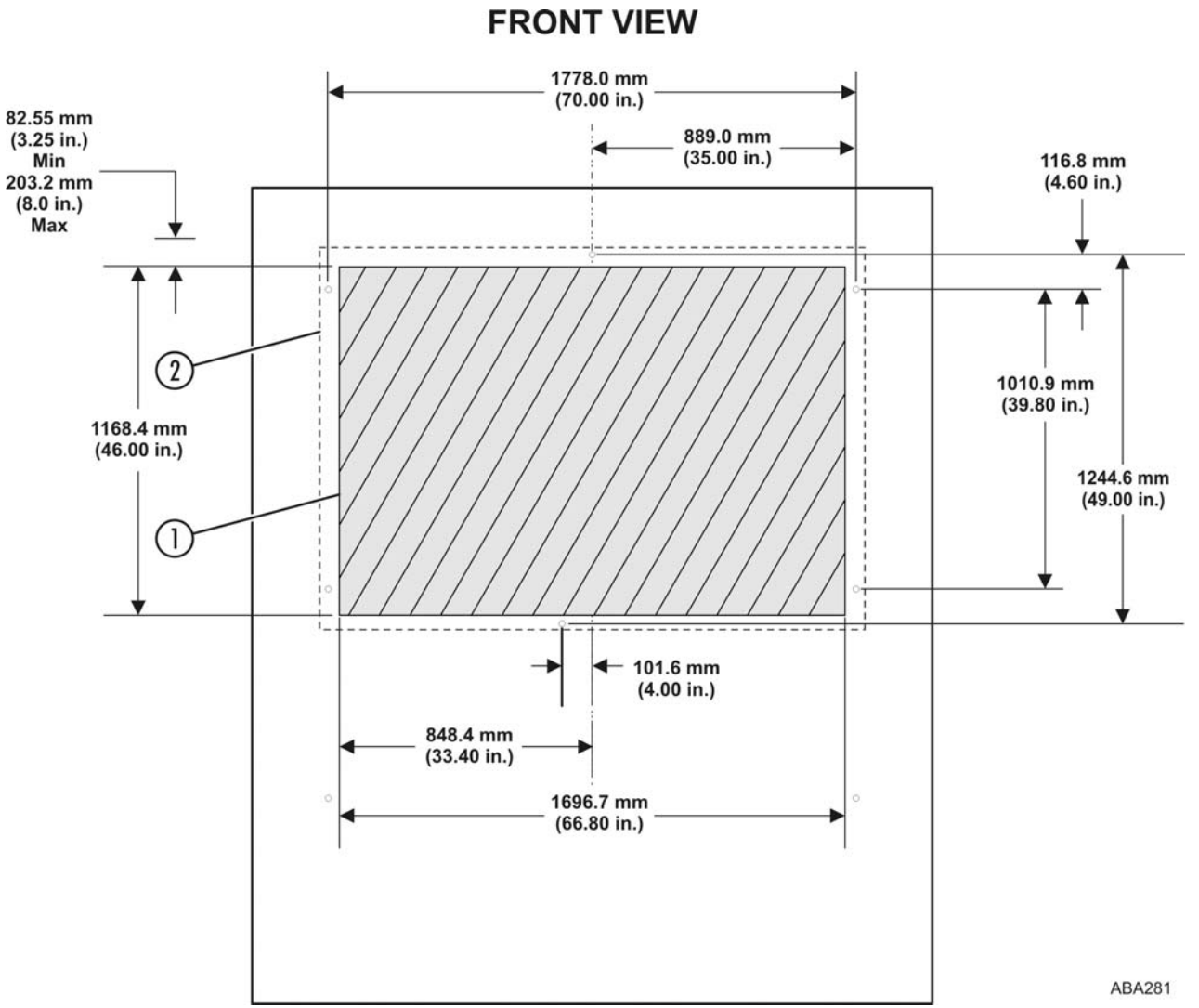
DANGER: The front trailer wall must be structurally strong enough to support the weight of the refrigeration unit!

The location of the unit mounting bolts and evaporator opening in the front wall is critical.
VERIFY ALL DIMENSIONS BEFORE INSTALLING UNIT!

NOTE: It may be necessary to relocate the front corner clearance lights to the corner radius of the trailer to prevent damage.

1. The evaporator opening must be square. The diagonal measurements must be ±3.0 mm (0.12 in.)
2. The gasket surface around the opening must be at least 76.2 mm (3.00 in.) wide, be flat ±3.2 mm (0.05 in.) and free of rivets, seams or bolt heads.

Evaporator Opening Requirements



Mounting Hardware Requirements

Mounting Bolts

DANGER: Eight mounting bolts must be installed to properly secure the unit to the trailer front wall! Failure to do so could result in severe damage to equipment, void the warranty or cause personal injury or death!

NOTE: The location of the unit mounting bolts in the trailer front wall is critical to proper unit installation.

All mounting bolts must be square with the front wall and securely fastened to the trailer wall in such a manner to allow the mounting nuts be torqued to 82 N•m (60 ft. lbs.) from outside the trailer.

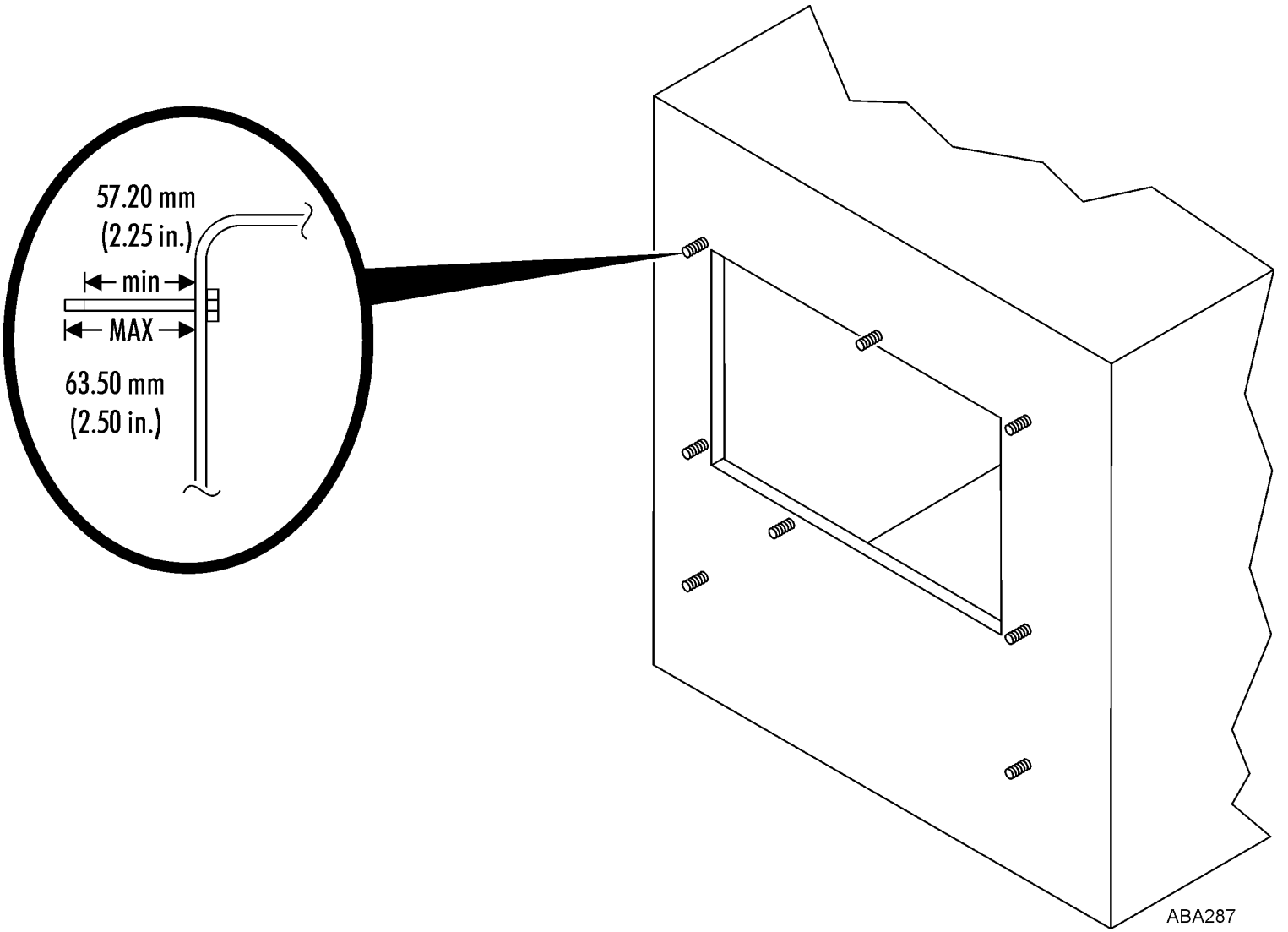
- Mounting bolts are to extend a minimum 57.20 mm (2.25 in.) and a maximum of 63.50 mm (2.50 in.) beyond the front wall.
- Surface of all mounting bolts are to be flat within 2.50 mm (0.10 in.).

Mounting Bolt Specifications

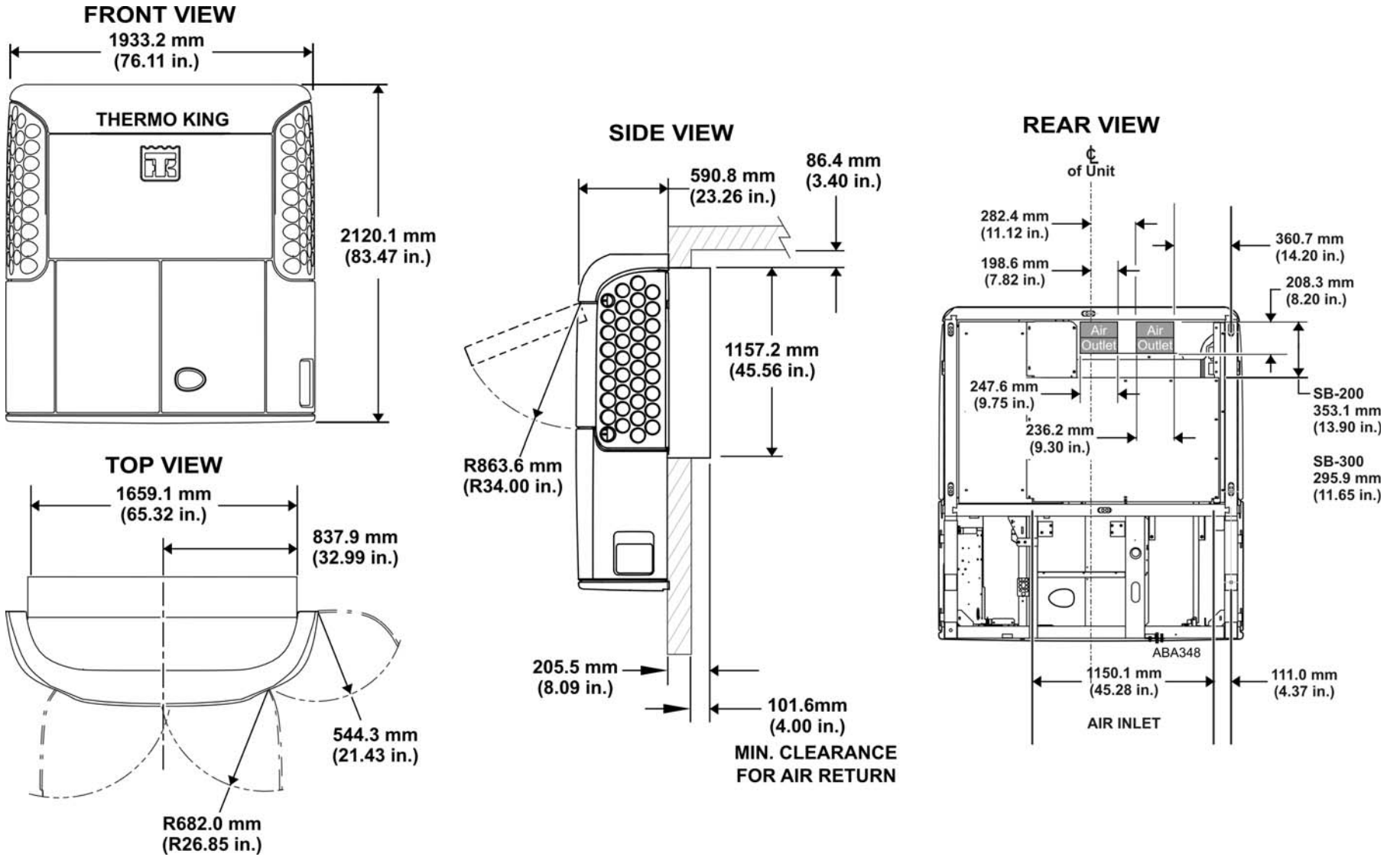
DANGER: The use of mounting bolts other than those specified could result in severe damage to equipment, void the warranty or cause personal injury or death!

Use Metric M12 x 1.75 pitch class 8.8 (1/2 in.-13 UNC - 28 Rolled thread grade 5), medium carbon steel bolts and locking nuts. All hardware must be zinc plated with dichromate finish.

Mounting Hardware Requirements



Unit Dimensions



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Battery Selection Guide

Refer to Service Bulletin T&T 446 for more information regarding Battery Selection and Maintenance.

CAUTION: Do not connect other manufacturer's equipment or accessories to the Thermo King unit! This could result in severe damage to equipment and void the warranty!

IMPORTANT: The specified battery, electrical wiring and electronic controls were designed to operate and maintain only the Thermo King refrigeration system and factory authorized Thermo King options.

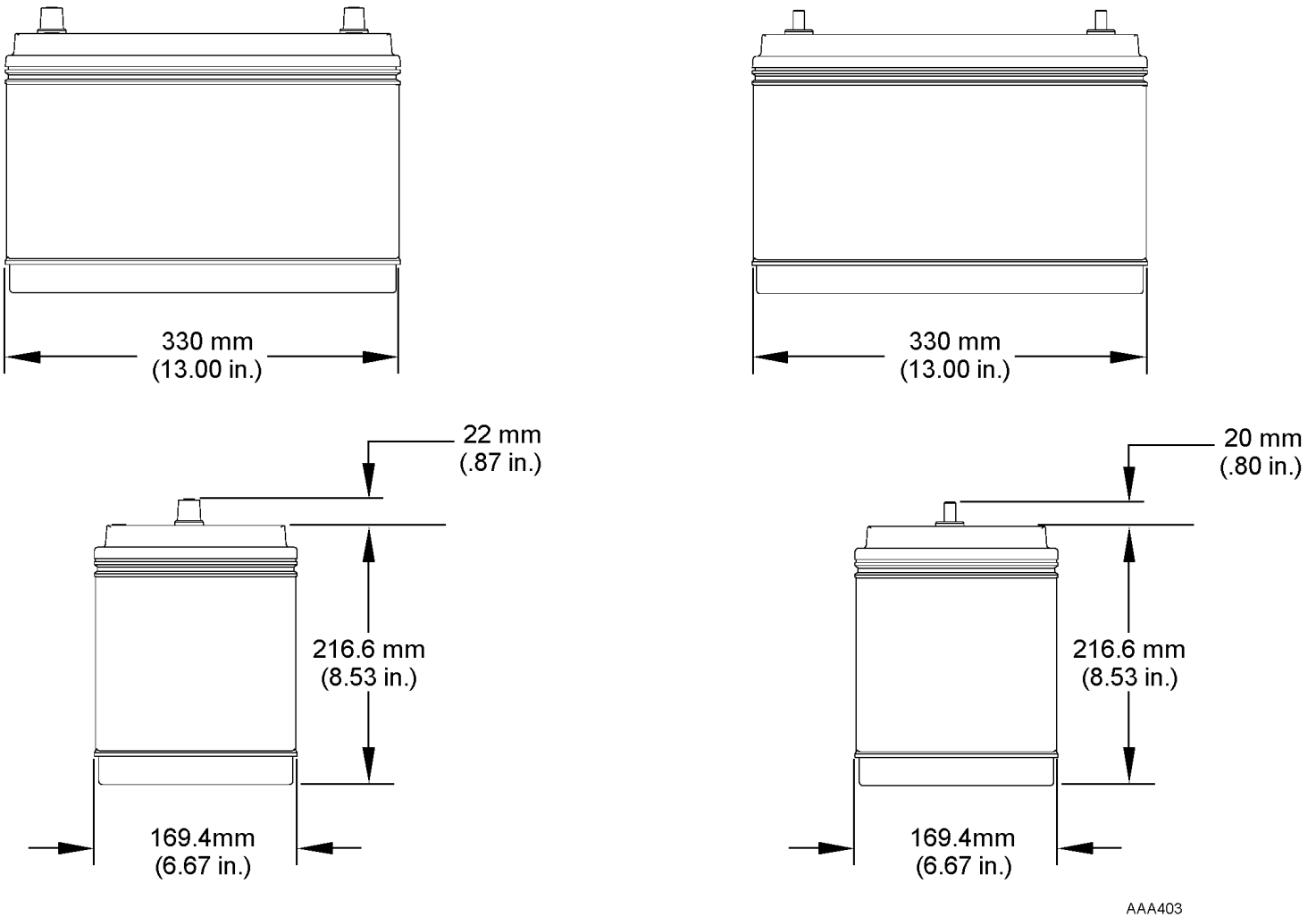
Trailer units are designed for one 12 volt, Group 31 battery supplied by the installer.

The battery must be suitable for deep cycling, heavy duty and rated with a minimum of 95 amp/hr.

NOTE: See following table for Thermo King approved batteries. Refer to Service Bulletin T&T 446 for more information regarding Battery Selection and Maintenance.

BATTERY APPLICATION TABLE		
750 CCA Wet Cell Thermo King ReliaMax 750S P/N 203-731 Threaded Stud P/N 203-730 SAE Post	925 CCA Wet Cell Thermo King ReliaMax 925N P/N 203-733 Threaded Stud P/N 203-732 SAE Post	1150 CCA Dry Cell (AGM) Thermo King EON P/N 203-550 Threaded Stud P/N 203-551 SAE Post
• Wet Cell Technology • Better suited for warmer climates • Less cranking power at low ambient temperatures • 18-24 month expected life *see note below • Choose for southern climates	• Wet Cell Technology • Better suited for colder climates • High cranking power at low ambient temperatures • 18-24 month expected life *see note below • Choose for northern climates	• Dry Cell (AGM) Technology • Better suited for all applications • High cranking power at lower ambient temperatures • Suited for extreme temperatures • Best for high cycling applications (Cycle-Sentry use) • 5-7 year expected life
* NOTE: Wet cell battery life and maintenance requirements are determined by the operating environment and the charge/discharge rate (cycles) while the battery is in service. Higher ambient temperatures and frequent discharges will shorten a wet cell battery's overall life expectancy and increase maintenance requirements.		

Group 31 Battery Dimensions



Lifting Bar Dimensions

WARNING: Do not use a fork lift to install unit! This could result in severe damage to the equipment, void the warranty or cause personal injury or death!

WARNING: Thermo King requires a 3 point lifting bar to safely lift and install units. A lifting bar can be made from the drawings provided.

WARNING: All hardware used to assemble the lifting bar must be DIN 931 class 10.9 (SAE grade 8). The use of hardware other than specified may cause personal injury, severe damage to the evaporator and void the warranty.

WARNING: The lifting bar and lifting device combined must be able to support minimum weight of 1360.8 kilos (1 1/2 tons).

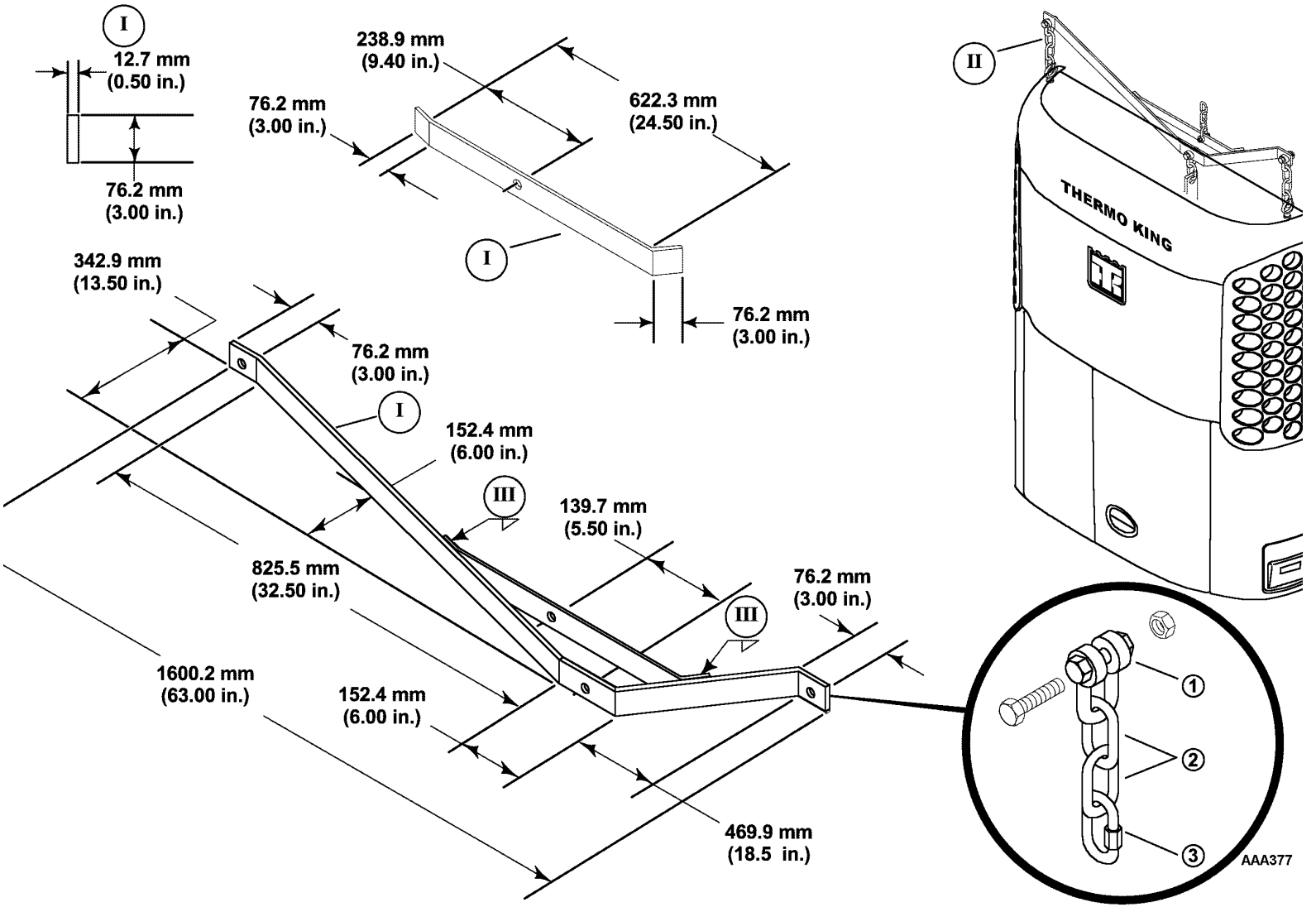
I. Recommended material: 76.2 mm (3.00 in.) x 12.7 mm (0.50 in.) mild steel.

II. Use forged chain links and hooks, clevis and pins with strength equal to total lift capacity of hoist mechanism and meet all safety standards.

III. Bolt together for maximum strength and safety.

1. Forged Clevis Pin.
2. Forged Chain Links.
3. Locking Master Chain Link.

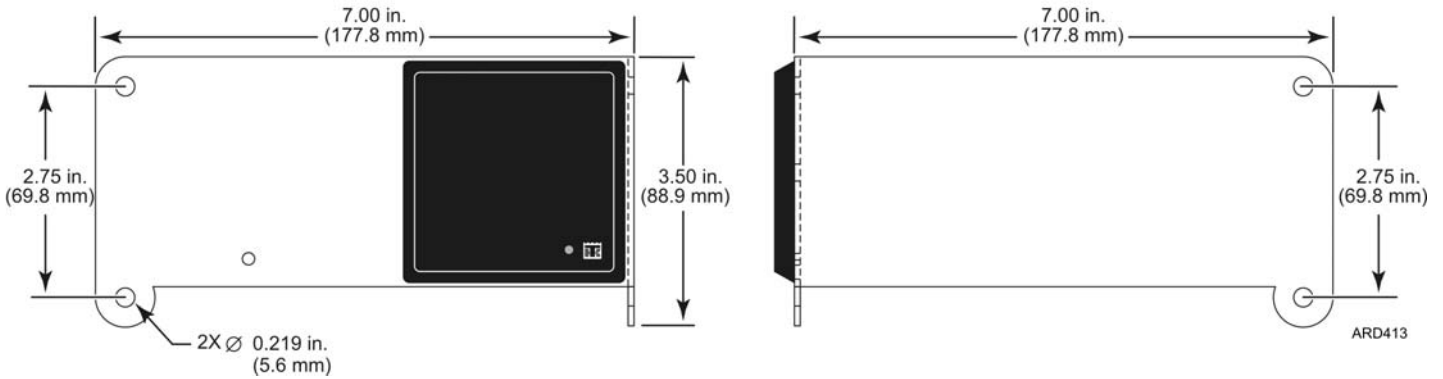
Lifting Bar Dimensions



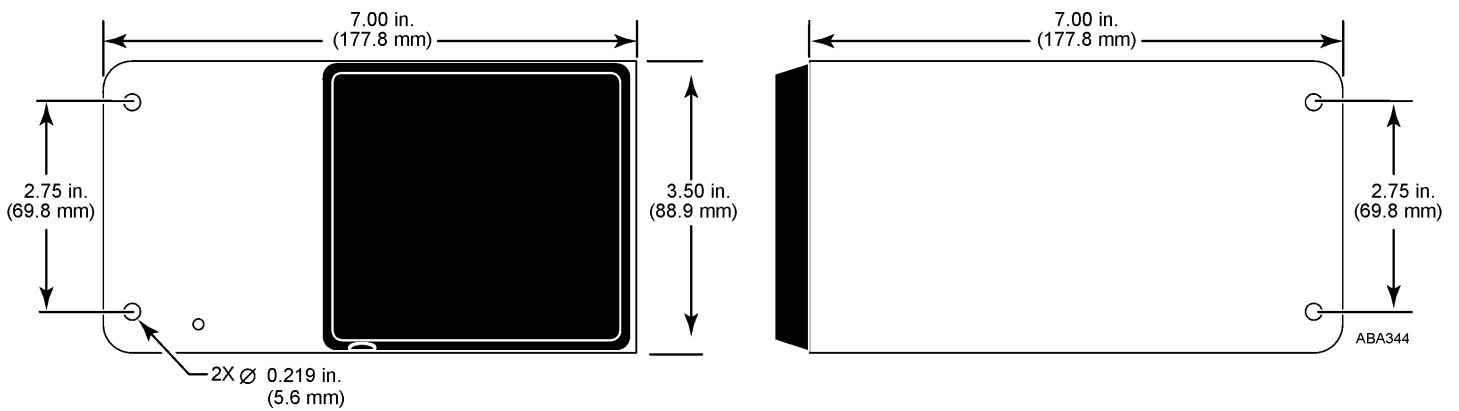
Surface Mounted Status Light Dimensions (Option)

Contact your Thermo King Dealer for specific part numbers.

Standard Display and Fuel Combo Display

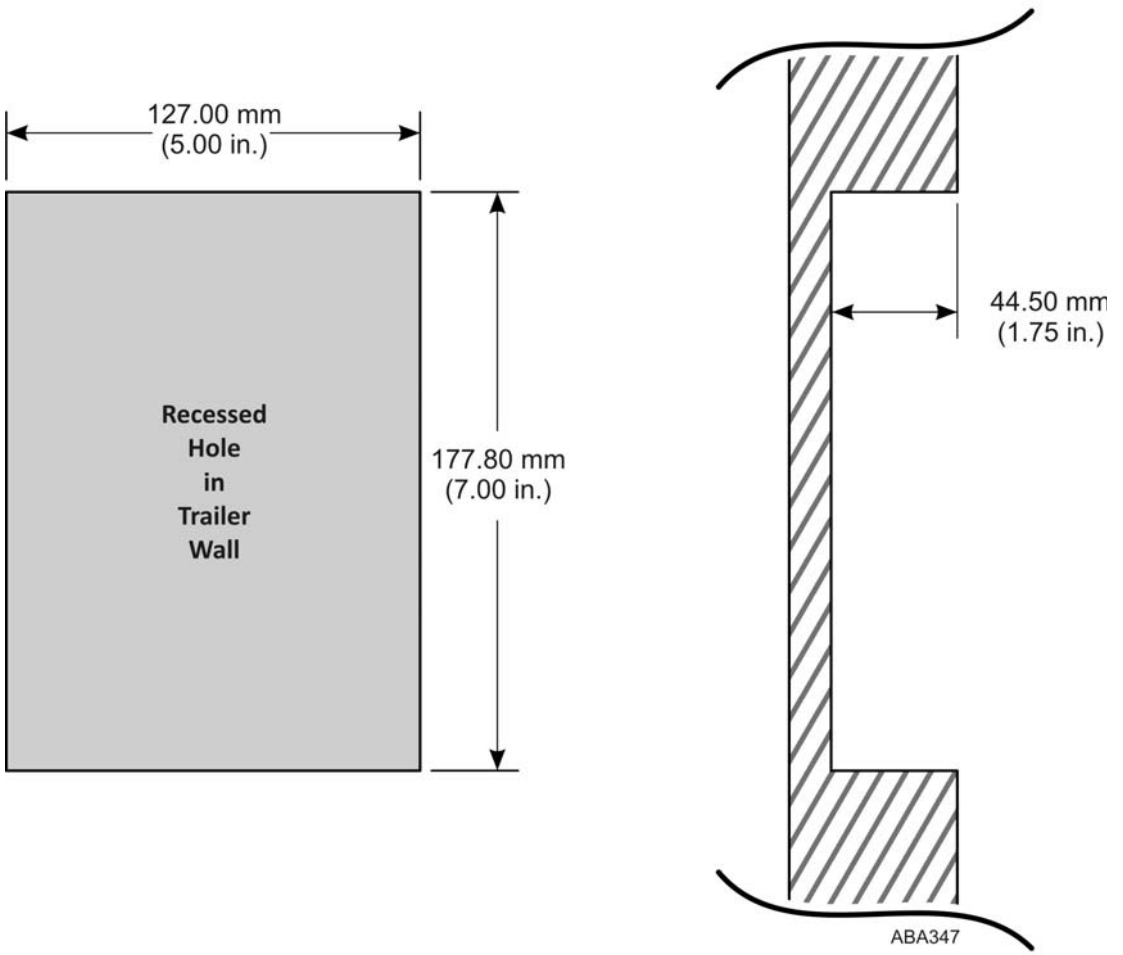


Triple Combo Display



Flush Mounted Status Light Opening Dimensions (Option)

Contact your Thermo King Dealer for specific part numbers.

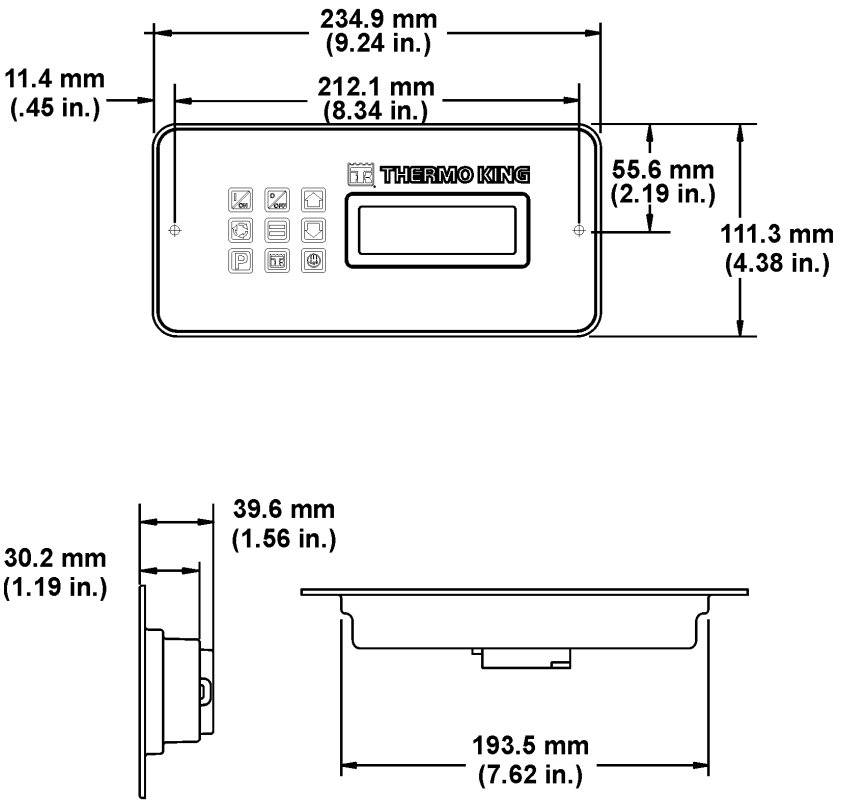


NOTE: Dimensions shown will accommodate the flush mounted Standard Display, Standard and Fuel Combo Display and Triple Combo Display.

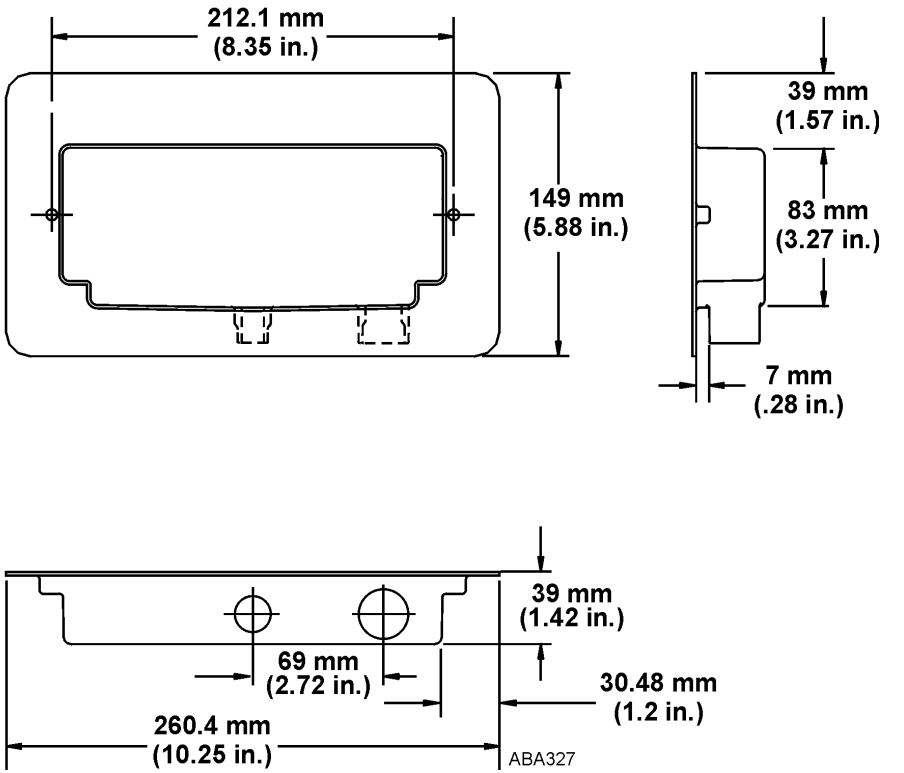
Rear Remote Controller Dimensions (Option)

Contact your Thermo King Dealer for specific part numbers.

CONTROLLER

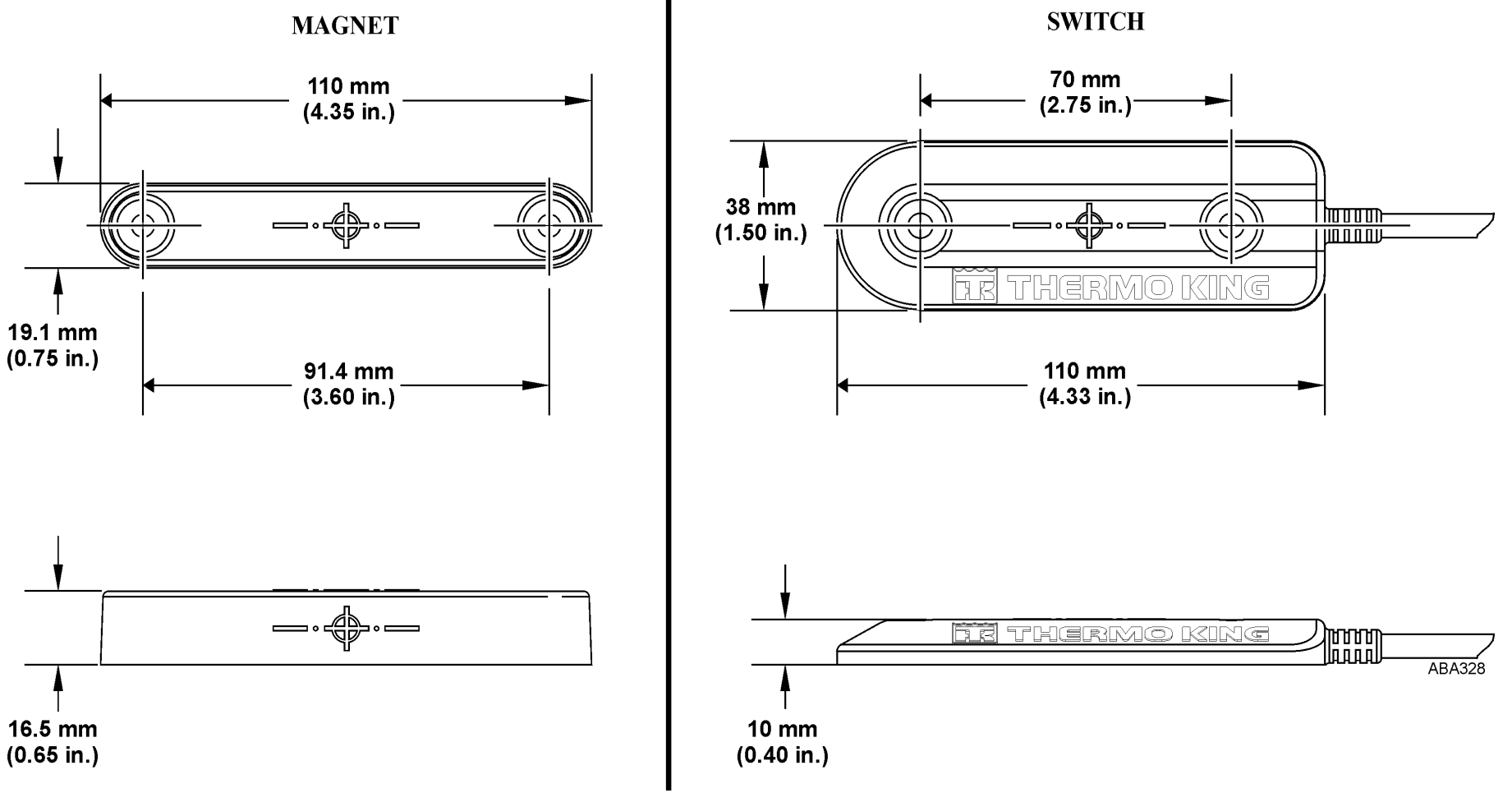


CONTROLLER BOX



Door Switch Dimensions (Option)

Contact your authorized Thermo King Dealer for specific part numbers.



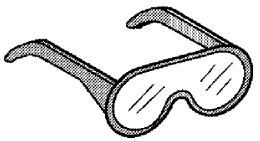
Required Tools

1. Safety Glasses
2. Drill
3. Drill Bits
4. Tape Measure
5. Mechanics Tools
6. Lifting Bar
7. Work Platform (Recommended)
8. Torque Wrench
9. Forged Eyebolts

NOTE: Equipment such as scales, gauges, refrigerant leak detectors, and torque wrenches should be in good working condition and routinely calibrated to assure accurate readings.

Required Tools

1



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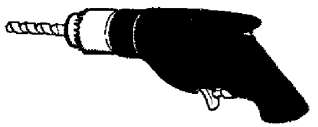

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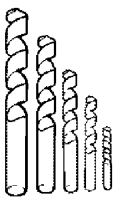

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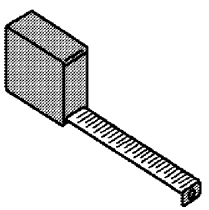

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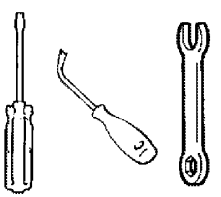

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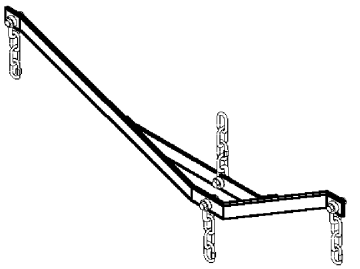

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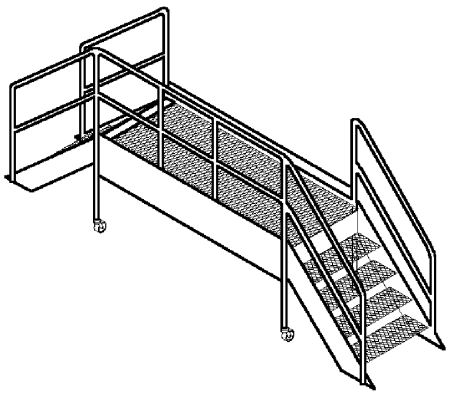

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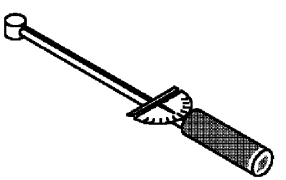

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Installation Components

1. Locking Nuts
2. Washers
3. Self Tapping Screws
4. Clamps
5. Cable Ties
6. Fuel Line Hose
   1/4 in.
   3/8 in.
7. Fuel Line Fittings
   1/4 in.
   3/8 in.
8. Fuel Line Connector
9. Drain Hose Check Valve

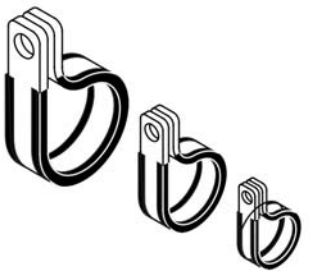
Installation Components

1

2

3

4



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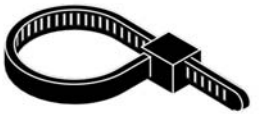

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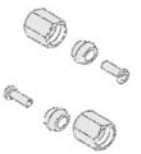

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Unpacking the Unit

DANGER: Do not use a forklift to install the unit! This could result in severe damage to the equipment, void the warranty or cause personal injury or death!

WARNING: Thermo King requires a 3 point lifting bar to safely lift and install units. A lifting bar can be made from the drawings provided (see Lifting Bar Dimensions).

Units are shipped attached to disposable wooden pallet wrapped with protective cardboard and plastic stretch wrap.

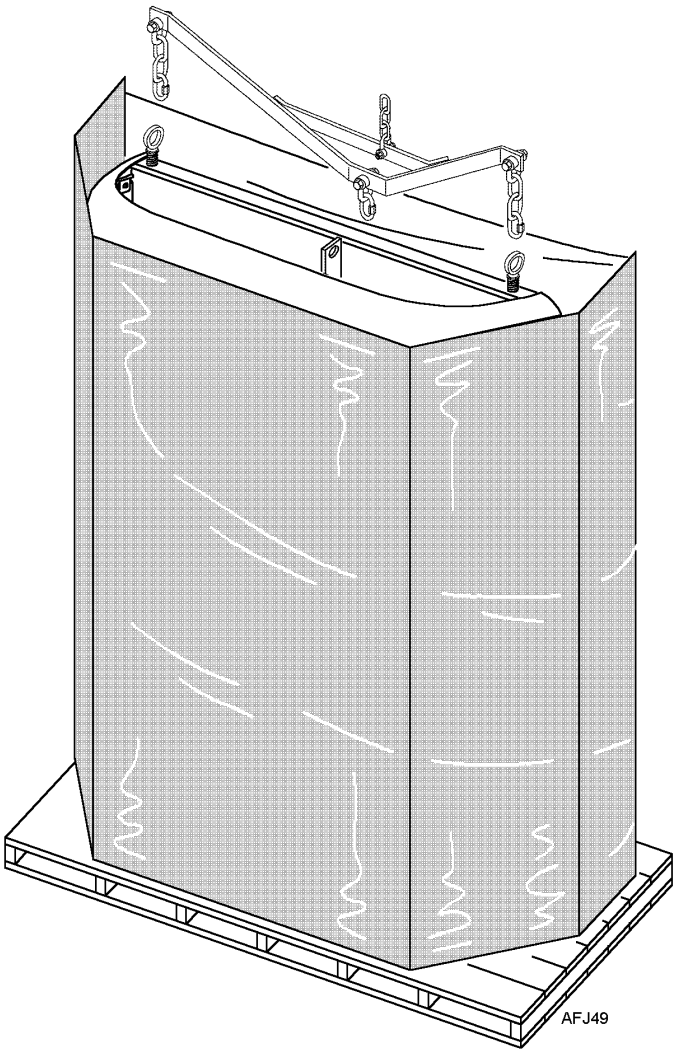
NOTE: To avoid unnecessary damage to your unit, place the crated unit near the trailer prior to its removal.

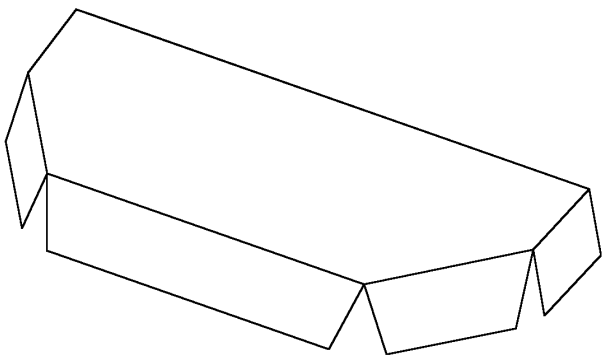
IMPORTANT: DO NOT use a sharp knife to remove the stretch wrap or cardboard wrap as damage to the exterior of the unit will result!

Unpacking the Unit

- Carefully remove plastic stretch wrap from unit.
- Carefully remove the top cardboard cover.
- Carefully remove the outer cardboard wrap.
- Remove installation kit boxes, bottom panel, and any other loose components from rear of unit.
- Attach forged eyebolts and 3 point lifting bar to unit.
- Remove hardware holding unit to wooden pallet.
- Unit is now ready for installation.

Unpacking the Unit





Installing the Unit

WARNING: Do not use a forklift to install the unit! This could result in severe damage to equipment, void the warranty or cause personal injury or death!

WARNING: Use only locking hooks to safely lift the unit! Failure to use locking hooks could result in severe damage to the equipment, void the warranty or cause personal injury or death! (Detail I).

WARNING: Thermo King requires a 3 point lifting bar to safely lift and install units. A lifting bar can be made from the drawings provided. See "Lifting Bar Dimensions" on page 18.

Access to Mounting Holes (Detail II)

1. Top side mounting hole through the hinged roadside grille.
2. Center side mounting hole through hinged roadside grille.
3. Lower side mounting hole through hinged roadside panel, and control box hole.
4. Center side mounting hole through hinged lower curbside door.
5. Lower side mounting hole through hinged curbside panel.
6. Center side mounting hole through hinged curbside grille.
7. Top side mounting hole through hinged curbside grille.
8. Top center mounting hole from top of the unit.

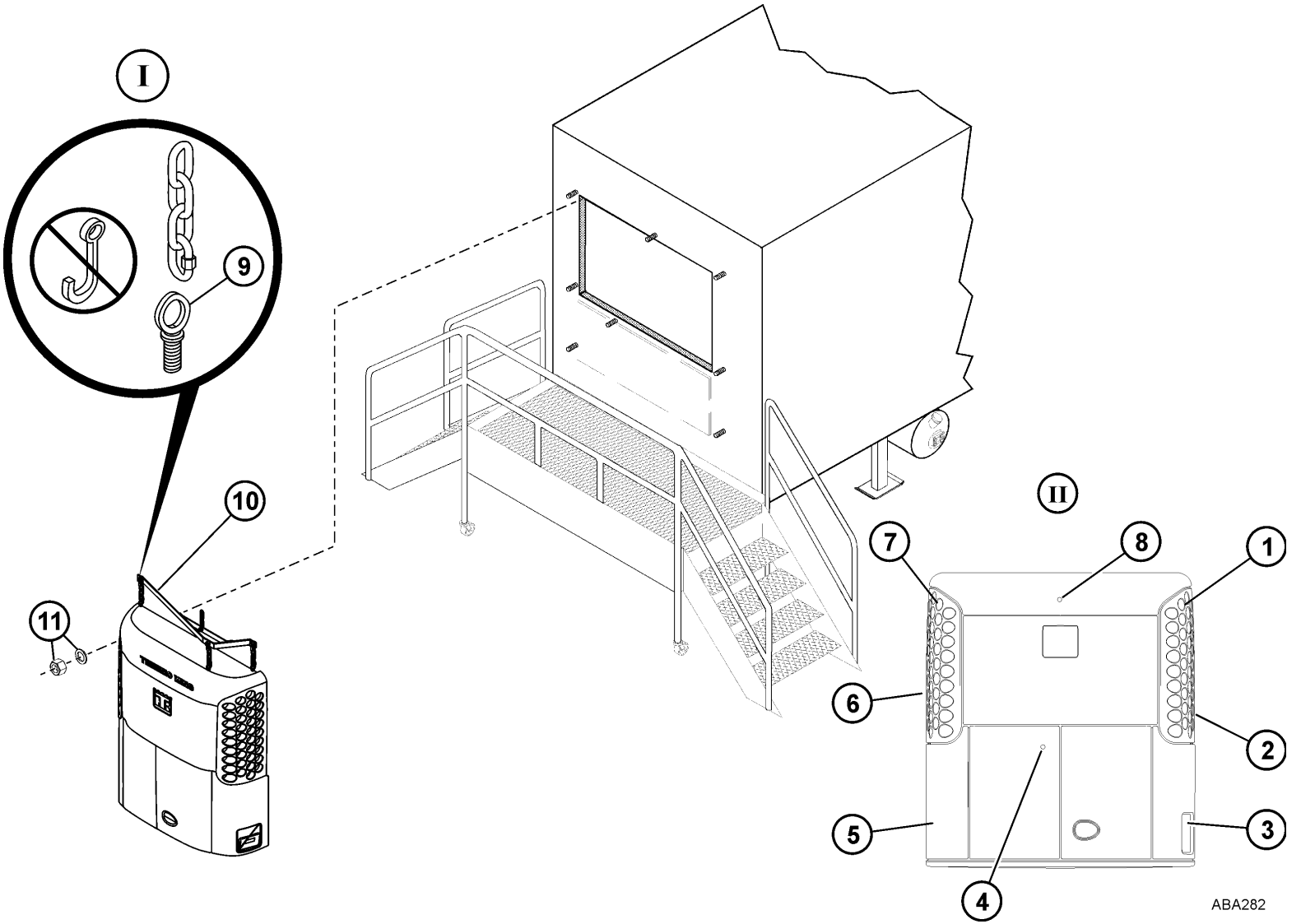
Unit Installation

9. Install two 5/8-11 forged lifting eyebolts into threaded holes located on the top of the unit **(Detail I).**
10. Use the lifting bar to lift unit up to the trailer opening.

NOTE: All nuts that hold the unit to the trailer should be elastic stop nuts (Nylock Type) provided in the installation kit.

11. Attach washer and elastic stop nuts provided in the installation kit. Torque to 82 N•m (60 ft. lbs.).

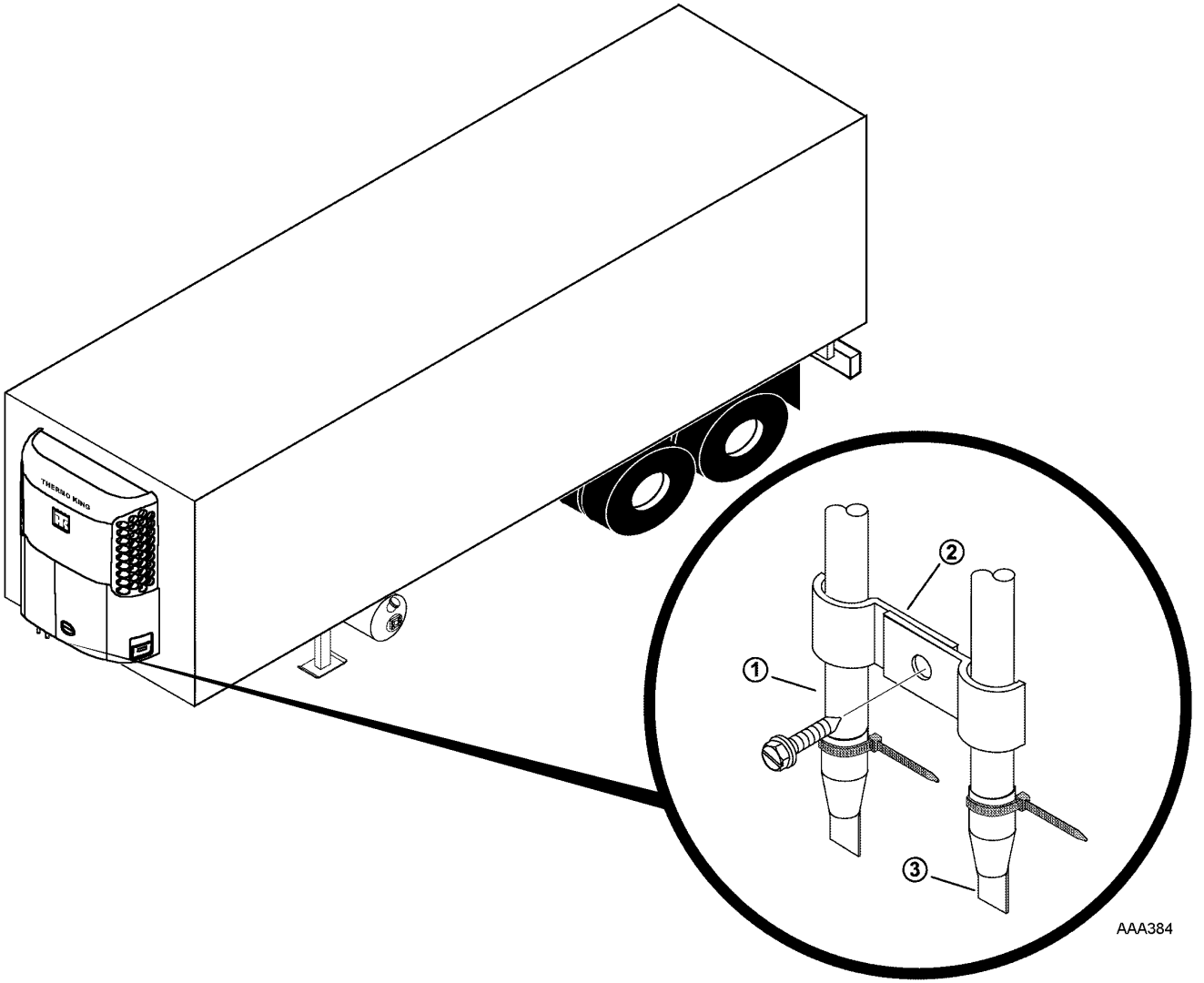
Installing the Unit



Installing the Drain Hoses

1. Drain Hoses should run straight down the trailer wall from the unit with no kinks or bends.
2. Secure with screws and clamps provided in installation kit.
3. Cut off excess hose and attach drain hose check valves provided in installation kit.

Installing the Drain Hoses



Installing the UFLS (Option)

Important Installation Information

The Ultrasonic Fuel Level Sensor (UFLS) should be installed into the fuel tank **before** the tank is installed onto the trailer.

If the fuel tank has already been installed, disconnect negative battery cable from unit, disconnect and cap all fuel lines, drain fuel from tank and remove tank from trailer.

- **DO NOT** connect power to the UFLS until it has been installed into the fuel tank.
- **DO NOT** use thread locking compounds as they can cause stress cracking of the plastic sensor.
- **DO NOT** apply any type of gasket sealer.
- **USE ONLY** the new gaskets supplied with the UFLS.
- **DO NOT** use power tools to tighten the mounting hardware or damage to the plastic sensor will result.
- **DO NOT** overtighten the mounting hardware or damage to the plastic sensor will result.

1. Remove and discard the access cover, gasket and hardware from the fuel tank. **DO NOT** reuse any of these parts.
   - Confirm the gasket surface area on the tank flange is clean.

Pre-Assembly

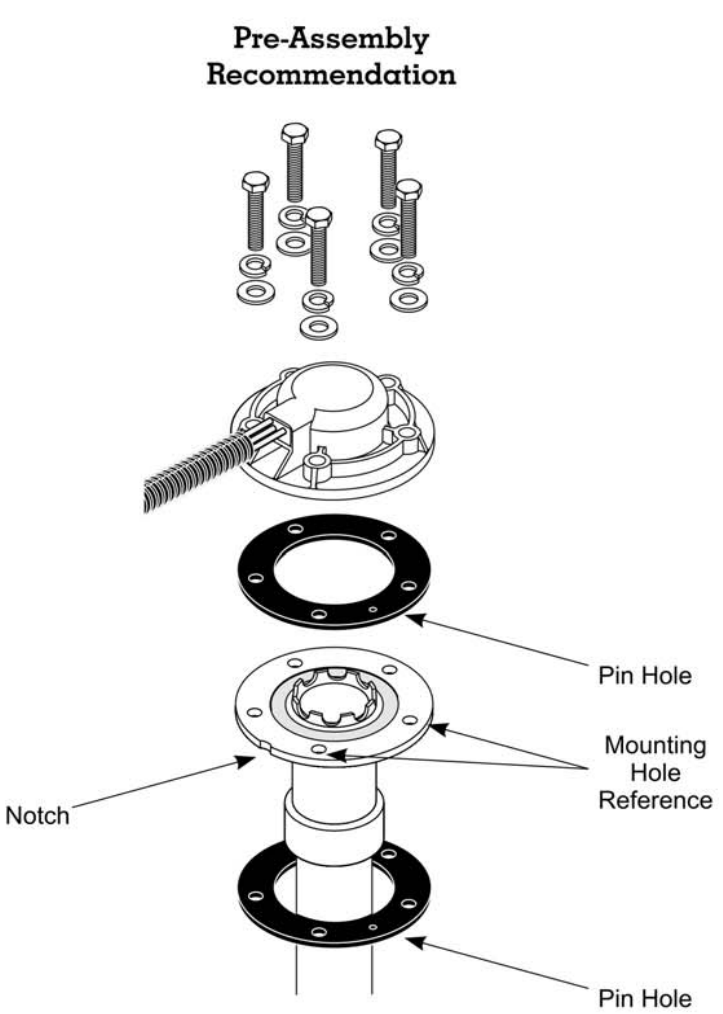
NOTE: The mounting holes of the sensor, focus tube, gaskets and the fuel tank flange are not symmetrical. The holes align only in one position. The distance between the two mounting holes next to the notch (see illustration) are further away than the others. These two holes will be used as a reference point to correctly align the components.

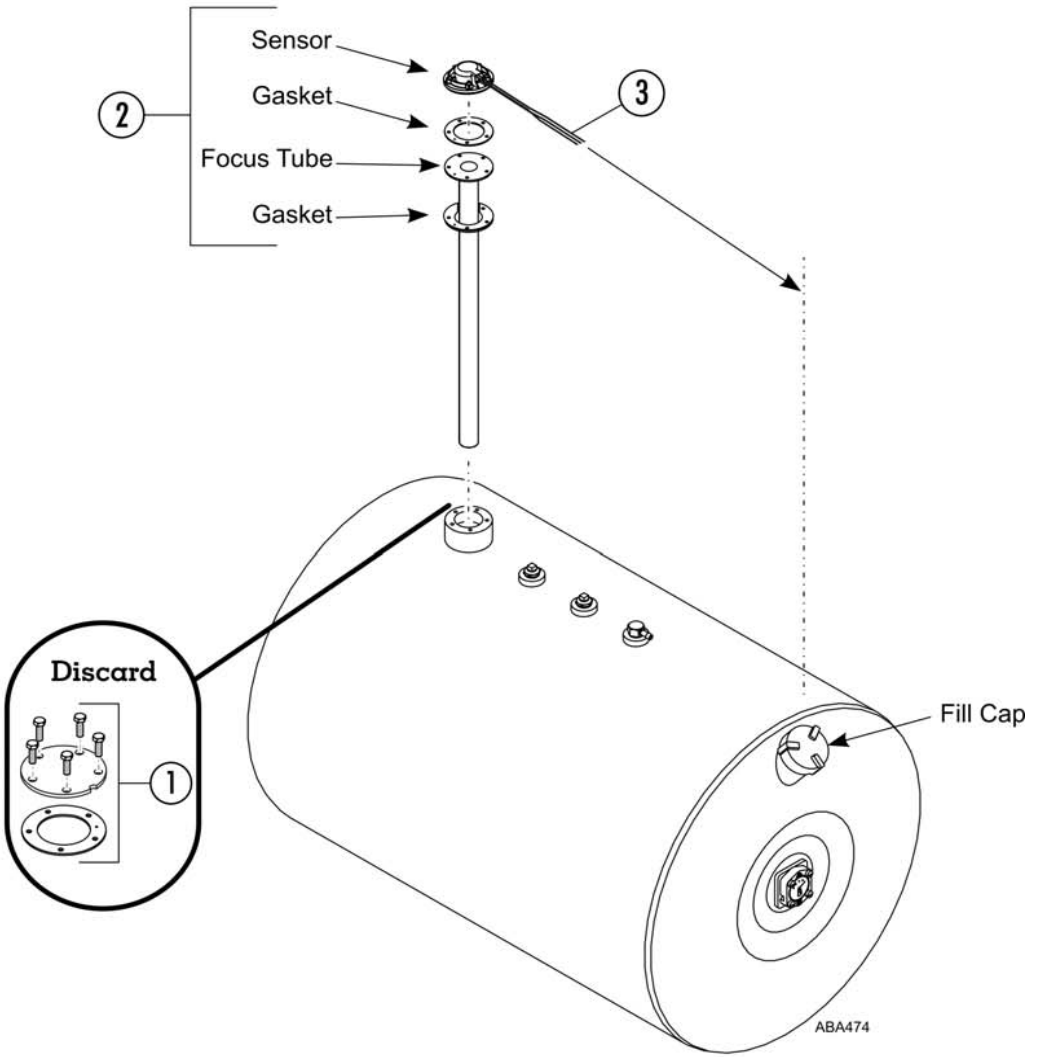
2. The UFLS assembly should be pre-assembled before installing it into the fuel tank.
   - Slide a gasket up the focus tube to the flange making sure the pin hole in the gasket is centered between the two mounting holes next to the notch as shown.
   - While holding the lower gasket in place, place the upper gasket onto the focus tube flange, again making sure the pin hole in the gasket is positioned between the two mounting holes next to the notch as shown.
   - Place the sensor on top of the upper gasket with the harness pointing towards the notch on the focus tube flange. All holes should now be aligned.
   - Install the 10-32 screws, lock washers and flat washers onto the sensor and through the gasket holes to hold the assembly together.

Installation in Tank

3. Insert assembly into fuel tank making sure the notch on the focus tube is aligned with the notch on the tank flange. When installed correctly, the sensor harness will be pointed towards the fuel fill on the end of the tank.
   - Hand tighten the five mounting screws in a criss-cross pattern and torque them to 10-15 in-lbs (1.1-1.7 N•m).
   - **DO NOT** overtighten the mounting hardware or damage to the plastic sensor will result.
   - The fuel tank is now ready to be installed.

Installing the UFLS (Option)





Installing the Fuel Tank - 50 Gallon, 22" Diameter, Aluminum

OPEN STYLE TANK MOUNTING BRACKET

IMPORTANT FUEL TANK INSTALLATION INFORMATION

Effective the first quarter of 2011, all 50 gallon, 22" diameter, aluminum fuel tanks will come equipped with the mounting flange for the Ultrasonic Fuel Level Sensor (USFLS) option.

DANGER: An improperly installed fuel tank could lead to serious injury or death! Consult your trailer manufacturer for specific details on proper fuel tank installation and recommendations.

CAUTION: The trailers crossmembers must be strong enough to safely support the combined weight of the mounting hardware, fuel tank and fuel.

Fuel Tank Capacity	Combined Total Weight
50 Gallon Diesel	214 KG (471 lbs.)

Open Style Tank Mounting Bracket - New fuel tank mounting kits were released November 1, 2008. Factory Kit 701635 and Aftermarket Kit 90-398 contain a new open style fuel tank mounting bracket. This new mounting bracket can be used to install either a 30 or 50 gallon, 22" diameter fuel tanks onto a typical trailer with standard crossmember spacing of 6", 8", 10" or 12".

- Trailers with non-standard crossmember spacing of 9", 15" and 16" will require the additional components found in Kit 701658 (90-399) to complete the installation.
- These new kits **can not** be used to install a 75, 90, 110 or 120 gallon, 22" diameter fuel tanks. Those tanks require Kit 710278 (90-121).
- **DO NOT** substitute any components from Kits 701635 (90-398) and 701658 (90-399) with any previously supplied fuel tank mounting kits as they are not interchangeable.
- Kits 701635 (90-398) and 701658 (90-399) are specifically designed to install a 30 or 50 gallon fuel tank in a hanging position under a trailer attached to the floor crossmembers. ***Substitutions are not acceptable!***

A. Fuel Tank Position

- Thermo King recommends the fuel tank be mounted 203.2 mm (8.00 in.) under the trailer as shown. Otherwise, the OEM or installer is responsible to ensure the fuel tank position meets or exceeds DOT or Federal Highway regulations, when applicable.

B. Tank Strap Position

- 50 Gallon Tanks - Fuel tank straps must be positioned 673 mm (26.50 in.) apart as shown.

C. Rubber Strips and Pads

- Rubber strips must be properly installed on both the mounting bands and the rubber pads must be installed onto the underside of the hanger assemblies to prevent metal to aluminum contact.

D. Mounting Hardware

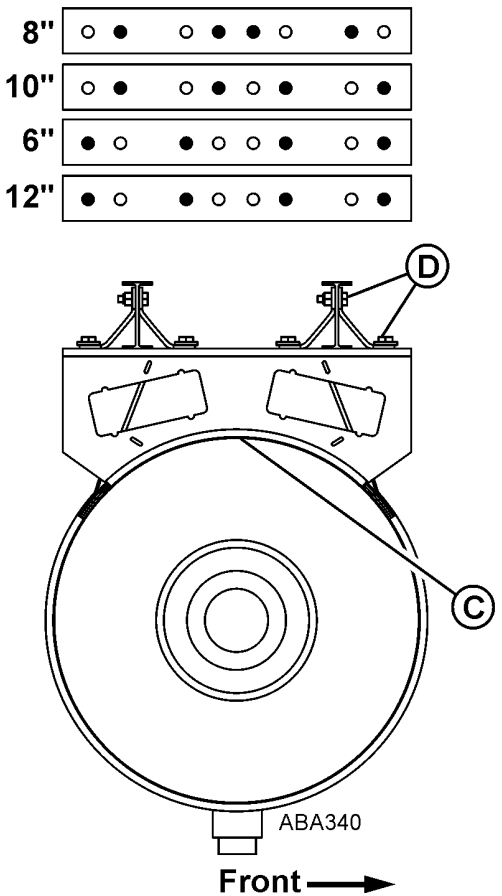
- Grade 5 mounting hardware is supplied. ***Substitutions are not acceptable!***
- All mounting hardware must be properly installed and torqued to the specifications listed.

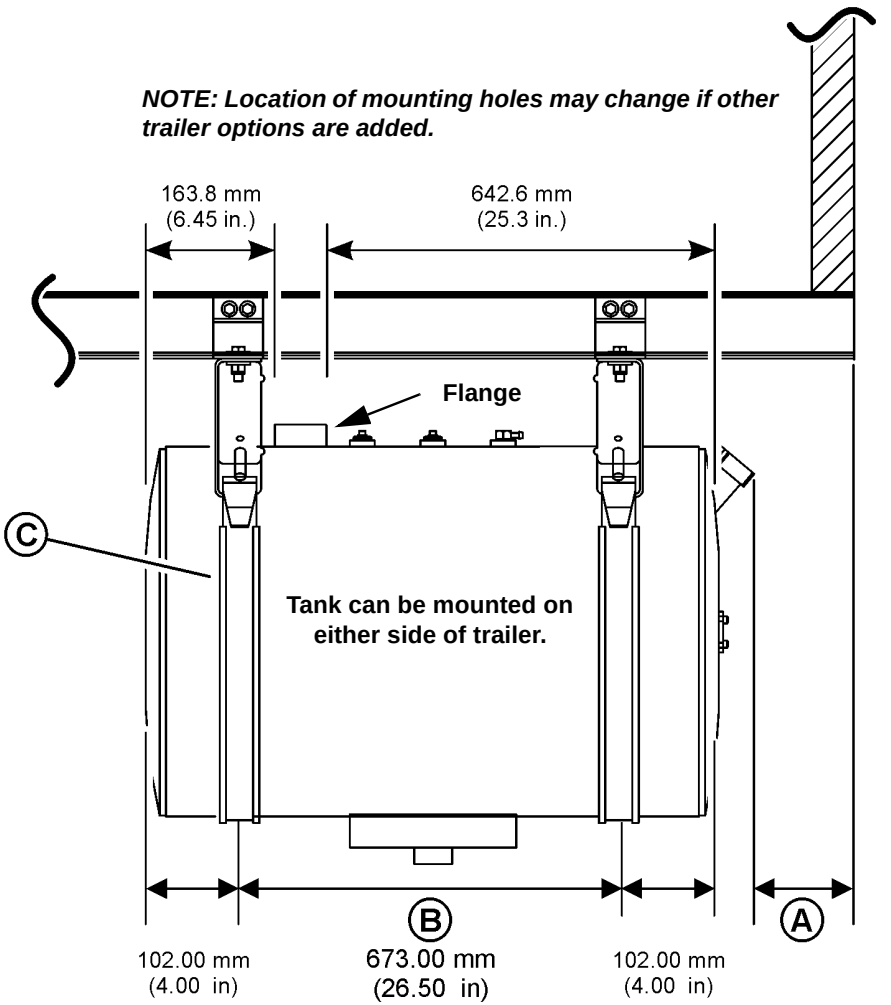
Hardware Size	Torque Specifications
3/8-16 Grade 5	42 N•m (31 ft-lb)
1/2 -13 Grade 5	81 to 88 N•m (60-65 ft-lb)
1/2" T-bolts	48 N•m (35 ft-lb.)

Installing the Fuel Tank - 50 Gallon, 22" Diameter, Aluminum

OPEN STYLE TANK MOUNTING BRACKET

Standard crossmember spacing shown. For other crossmember spacing, refer to TK-54238-2-IM.
Non-standard crossmember spacing of 9", 15" and 16" also requires Kit 701658 (90-399)





Installing the Fuel Tank - 50 Gallon, 22'' Diameter, Aluminum

OPEN STYLE TANK MOUNTING BRACKET

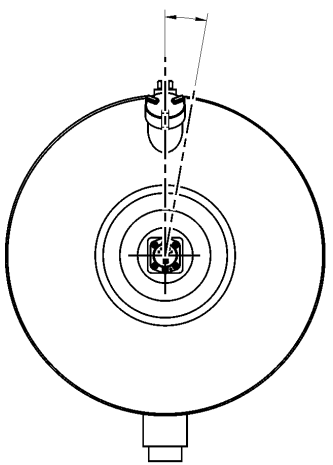
Fuel Tank Installation

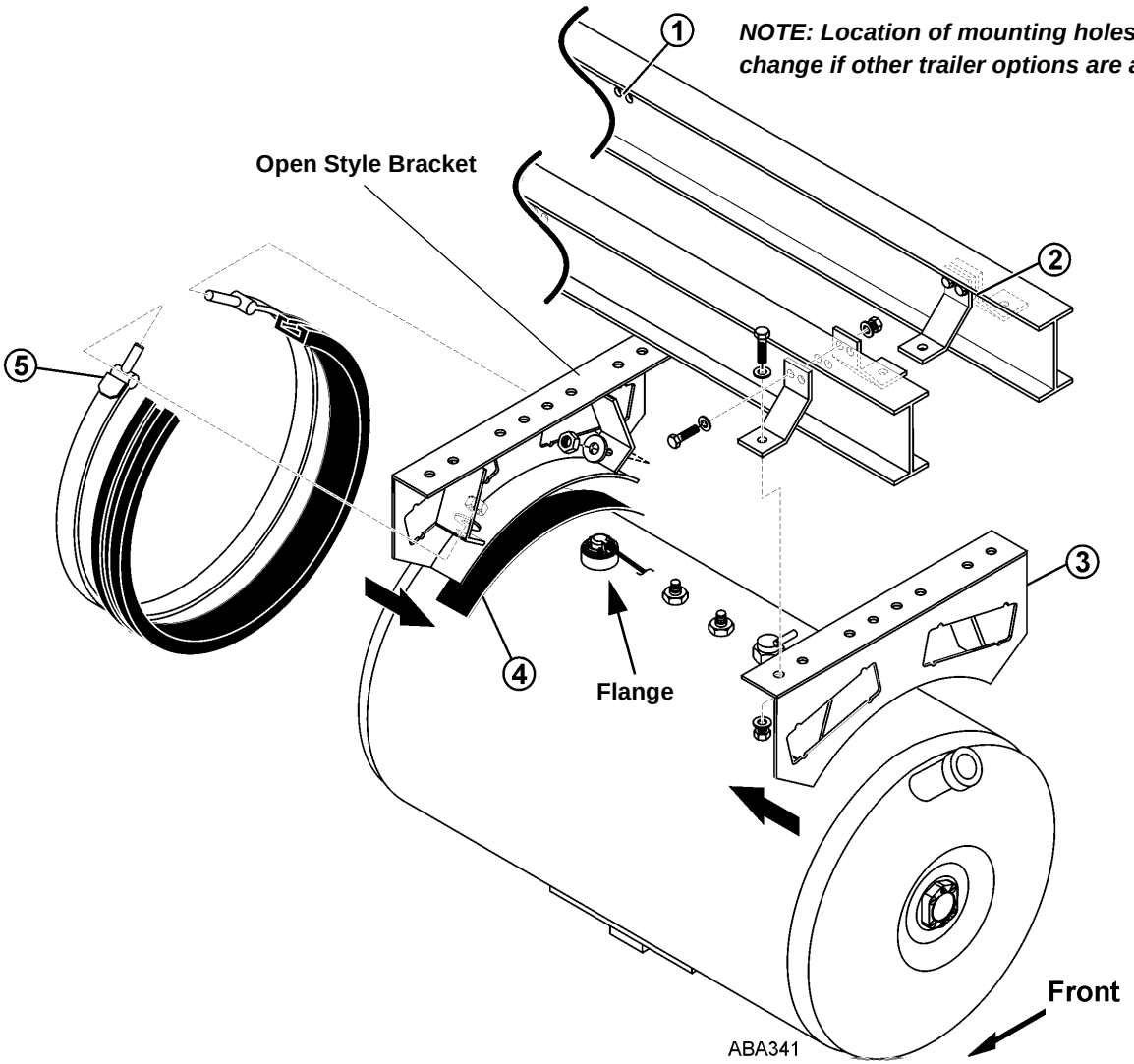
NOTE: Location of mounting holes may change if other trailer options are added.

1. Locate the existing sets of 10.3 mm (.406" dia.) pre-punched holes in the crossmembers. ***See note above.***
2. Align the two holes of each hanger bracket with the holes in the crossmember and secure with two, 3/8-16 screws, washers and locking nuts. Torque the hardware to 42 N•m (31 ft-lb).
3. Install each hanger assembly (facing each other as shown) onto the hanger brackets with 1/2-13 screws, washers and locking nuts. Torque the hardware to 81 to 88 N•m (60-65 ft-lb).
4. Install a self-adhesive rubber pad to the underside of each hanger assembly.
5. Loosely install the tank straps t-bolts onto the hanger assemblies with 1/2" washers and locking nuts. Verify the rubber strips are properly installed on the mounting bands.
6. Install the fuel tank into the straps with the tank positioned vertically within plus or minus 5 degrees and tighten the tank straps to 48 N•m (35 ft-lb).

Installing the Fuel Tank - 50 Gallon, 22" Diameter, Aluminum

OPEN STYLE TANK MOUNTING BRACKET





NOTE: Location of mounting holes may change if other trailer options are added.

Installing the Fuel Lines

Fuel Line Installation

DANGER: Leaking fuel lines could cause a fire resulting in death or serious injury! All fuel line fittings must be tight and leak free!

DANGER: Do not route fuel lines with battery cables or electrical wires, as this could cause a fire!

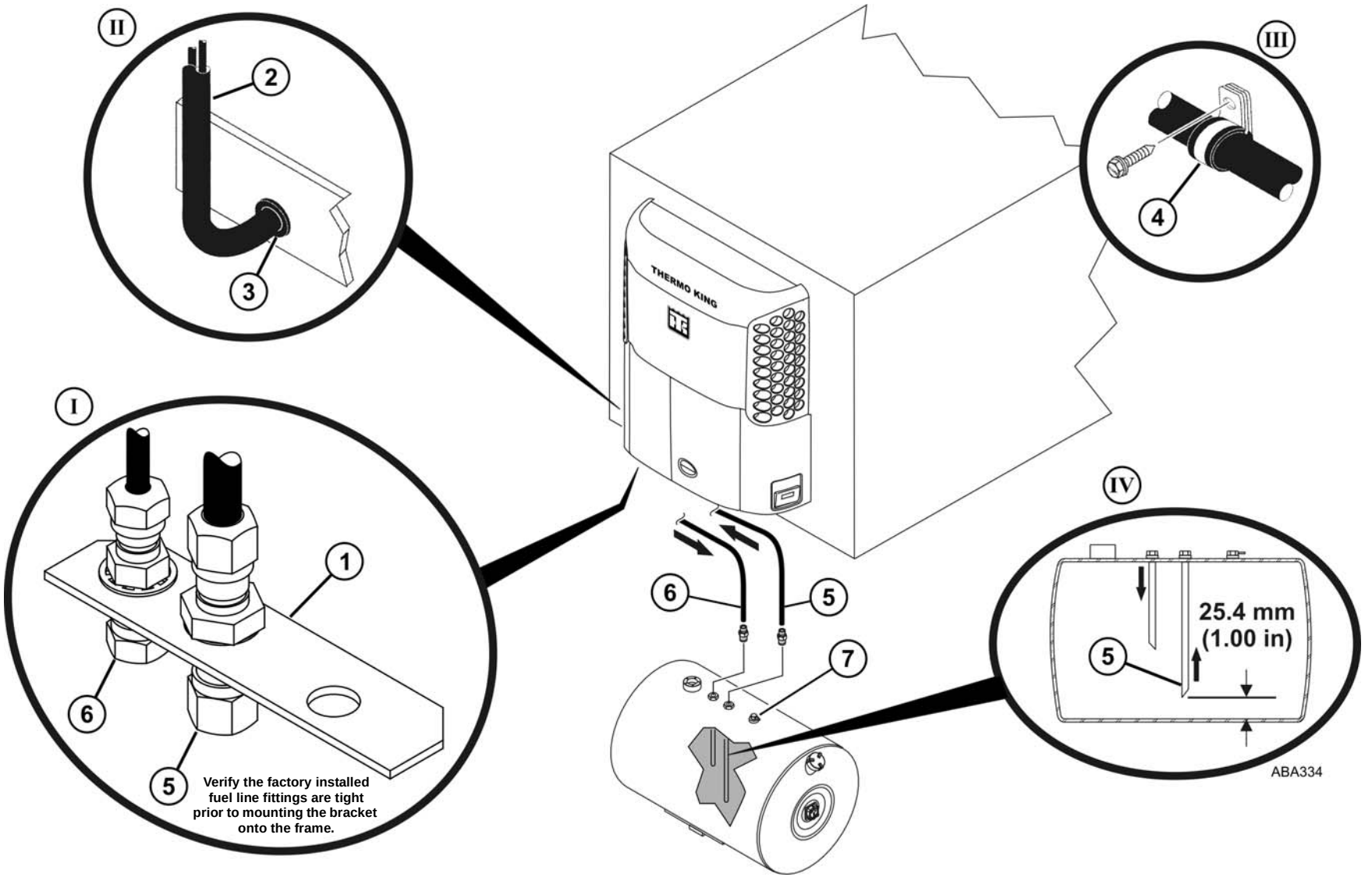
1. Install the fuel line bracket to the pre-drilled hole in the frame. This hole is located in the frame under the compressor **(Detail I)**.

IMPORTANT: Verify the factory installed fuel line fittings are tight prior to mounting the bracket onto the frame.

2. Fuel lines should be routed in a protective housing with no kinks or sharp bends **(Detail II).**
3. Rubber grommets must be used when routing fuel lines through holes in metal **(Detail II).**
4. Secure all fuel lines with provided clamps **(Detail III).**
5. Route **fuel supply** line from the unit to the fuel pump to the fuel pickup on the fuel tank. Install fuel line connector (provided in installation kit), cut end of fuel line at a 45 degree angle and insert into fuel pickup tube until it is 25.4 mm (1.00 in.) from bottom of tank and tighten securely **(Detail IV)**.
6. Route **fuel return** line from the unit to the fuel tank return fitting. Attach fuel line connectors and tighten securely.
7. Remove plastic cap from the fuel vent and point the outlet to the rear of the trailer.

NOTE: Add a sufficient amount of fuel (1/4 tank) to allow the unit to run for 8 to 12 hours during engine break-in and pre-delivery procedures.

Installing the Fuel Lines



Installing the UFLS Harness (Option)

"Solid State" Ultrasonic Fuel Level Sensor (UFLS)

Harness Installation and Routing

NOTE: The Ultrasonic Fuel Level Sensor (UFLS) is an option for 22" 50 gallon fuel tanks only and requires Interconnect Harness Kit 702414.

DANGER: Do not route electrical wires with fuel lines as this could cause a fire!

1. Locate the short **factory installed** fuel level sensor harness with the 3-pin connector. This connector is located outside the control box and band wrapped to other harnesses at the rear of the unit near the frame mounted ground plate.
   - Apply a light coating of Superlube or equivalent to this connector.
   - Connect the 30 ft. (9.1 m) Interconnect Harness to the mating 3-pin connector on the factory installed harness.
2. Route the harness to the fuel tank using trailer's harness conduit or chase to avoid interference with fifth wheel plate area.

NOTE: Thermo King recommends a conduit or chase with 1.00 in (25.4 mm) I.D. to accommodate the electrical harness.

Harness Connections

IMPORTANT: The use of the supplied crimp and solder style connectors with separate heat shrink tubing is required when connecting the sensor harness to the UFLS.

3. Cut the interconnect harness to length and splice wires to the fuel sensor's leads:

J3 Connector at Controller		Interconnect Harness Outside Control Box		Fuel Sensor Leads
PIN 12	2PL	PIN A	GREEN	RED
PIN 35	FUELN	PIN B	BLACK	BLACK
PIN 23	FLL	PIN C	WHITE	YELLOW

   - Slide supplied heat shrink tubing onto each wire and position them away from joint.
   - Connect each wire with wire connector and crimp securely.
   - Solder wires to wire connectors with a soldering gun.
   - Slide heat shrink tubing over each wire connector and applying heat with a heat gun.

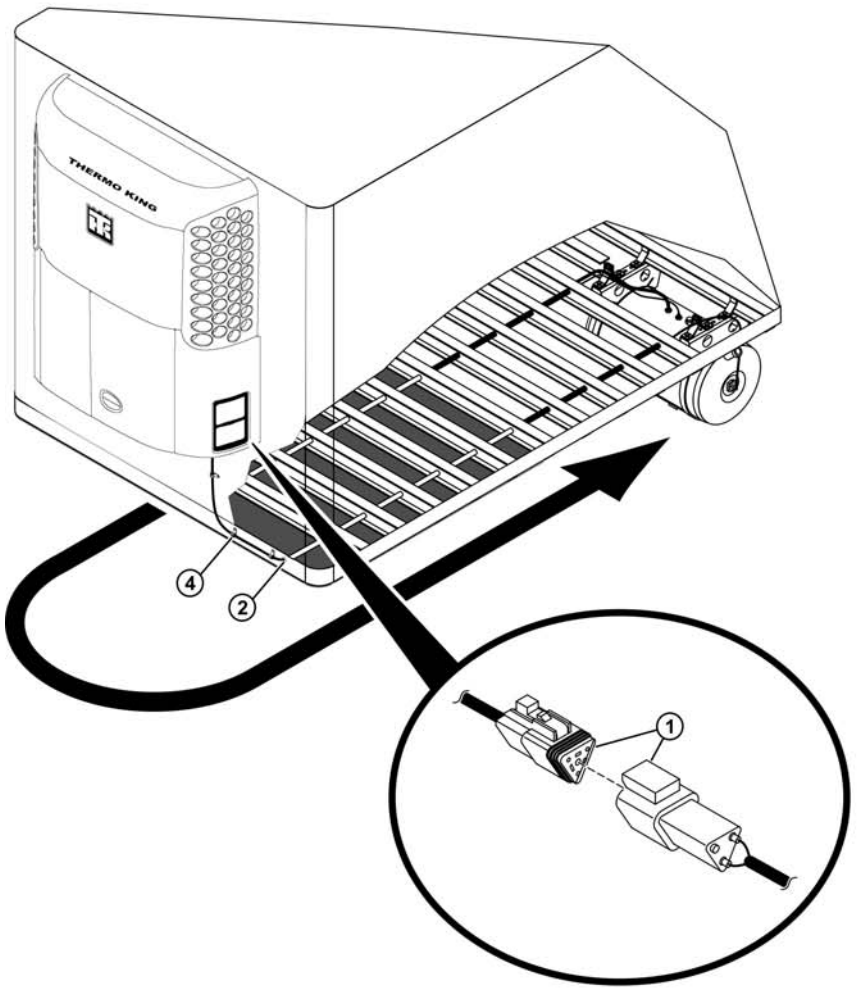
IMPORTANT: DO NOT burn the heat shrink. If the heat shrink is burnt, charred, or has bubbles from overheating, the wire connections must be removed and redone correctly.

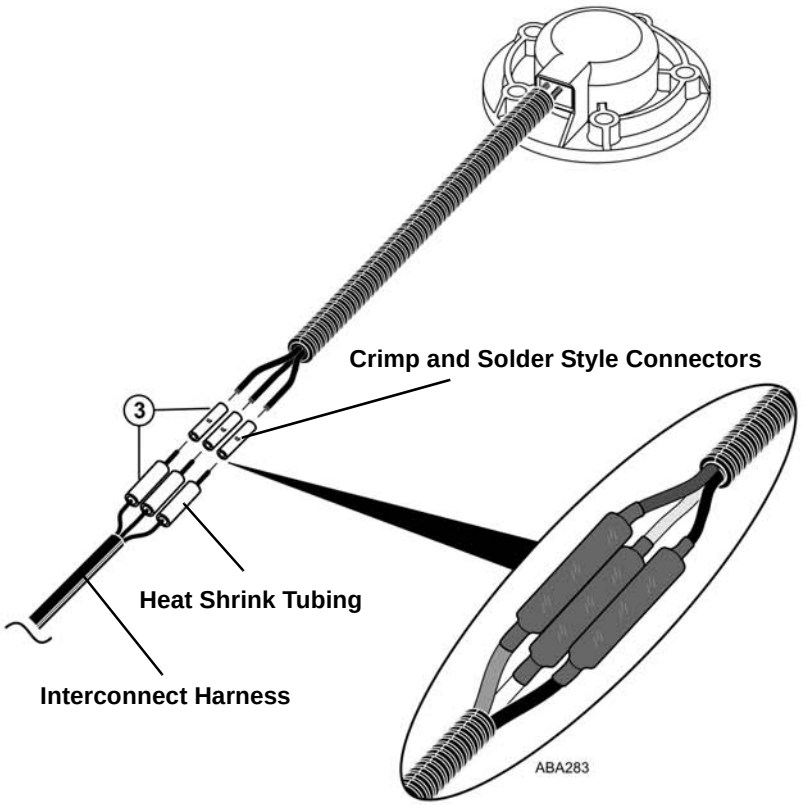
4. Use supplied cable ties, clamps and screws to secure the harness.

IMPORTANT: This is a "Solid State" fuel level sensor and the SR-2 Controller must be programmed accordingly to enable the fuel level feature.

Installing the UFLS Harness (Option)

Ultrasonic Fuel Level Sensor (UFLS)





Installing the Status Light (Option)

Installation

NOTE: Surface mounted status light installation shown, flush mounted light installs into recessed opening (see "Flush Mounted Status Light Opening Dimensions (Option)" on page 21) and electrical connections are made the same.

1. Mount the Status Light in a location so that is visible in the tractor mirror to the driver.
   - Mark and drill the four mounting holes using a 3/16" drill.
   - Mount the status light in position with the supplied rivets.
2. Route harness as shown allowing a "drip-loop" to prevent water from migrating into the Status Light.
3. Secure harness to the bracket and trailer using the supplied clamps and rivets.
4. Connecting the Status Light harness:

   STANDARD DISPLAY - connect harness to the matching 6-pin connector located outside the unit behind the battery tray and to the left of the control box.
   - Secure any excess harness with tie bands to the main harness behind the battery tray.

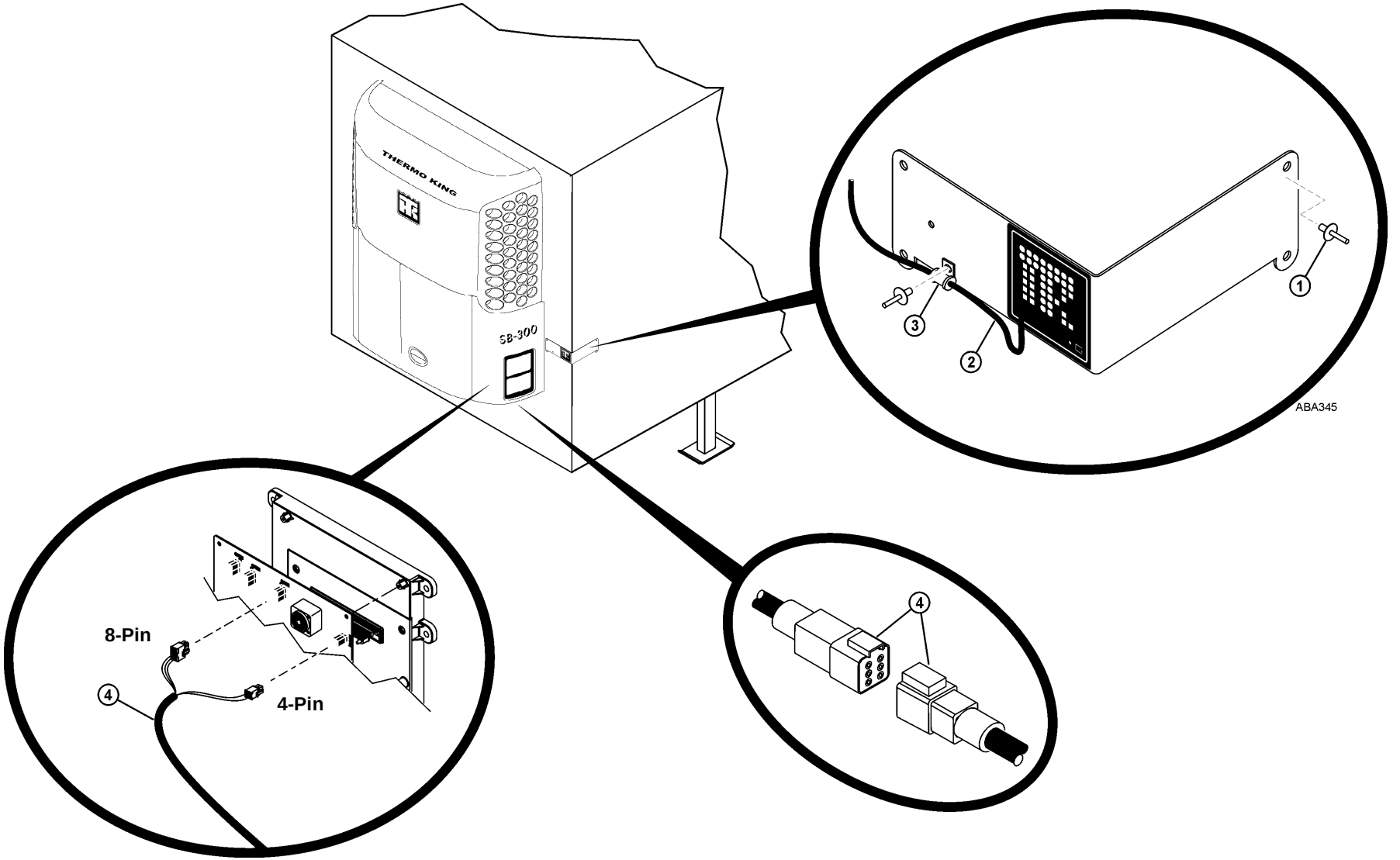
   FUEL COMBO and TRIPLE COMBO DISPLAYS - route the harness through the harness grommet and into the control box.
   - Connect the 4-pin connector to the Remote Light port on the circuit board.
   - Connect the 8-pin connector to CAN1 (J12). If this position is occupied use CAN2 (J13) or CAN3 (J14).

NOTE: If all CAN ports are occupied use the CAN extender Harness available from your Thermo King Dealer.

- Be sure the connectors are locked securely in place on the circuit board.
- Secure any excess harness with tie bands to the main harness behind the battery tray.

IMPORTANT: DO NOT secure excess harness to battery cables or refrigeration lines.

Installing the Status Light (Option)



DE Split-Evaporator Installation

CAUTION: Do not drill holes into refrigeration, electrical or mechanical components or severe damage to the equipment will result!

Return Airflow

Restrictions of the return airflow adversely affects the performance of the unit. The area directly behind the evaporator return air inlet must not be restricted.

Bulkhead Function

A bulkhead is used to keep the return airflow from being restricted if the load shifts. The bulkhead also prevents the load from shifting into the return airflow passageway on the front wall of the trailer.

DE Split-Evaporator Installations

All center-partition (longitudinally split trailer) installations are unique due to the splitting of the **air supply outlets** and **air supply returns**.

The following details are ***critical*** to this installation:

- A special bulkhead ***must*** be installed and sealed properly to ***"split"*** the **air supply returns** for each compartment.
- The center wall partition ***must*** be modified and sealed properly to ***"split"*** the **air supply outlets** for each compartment.
- Air gaps ***must*** be properly sealed with foam insulation or caulking.

Bulkhead (Detail I)

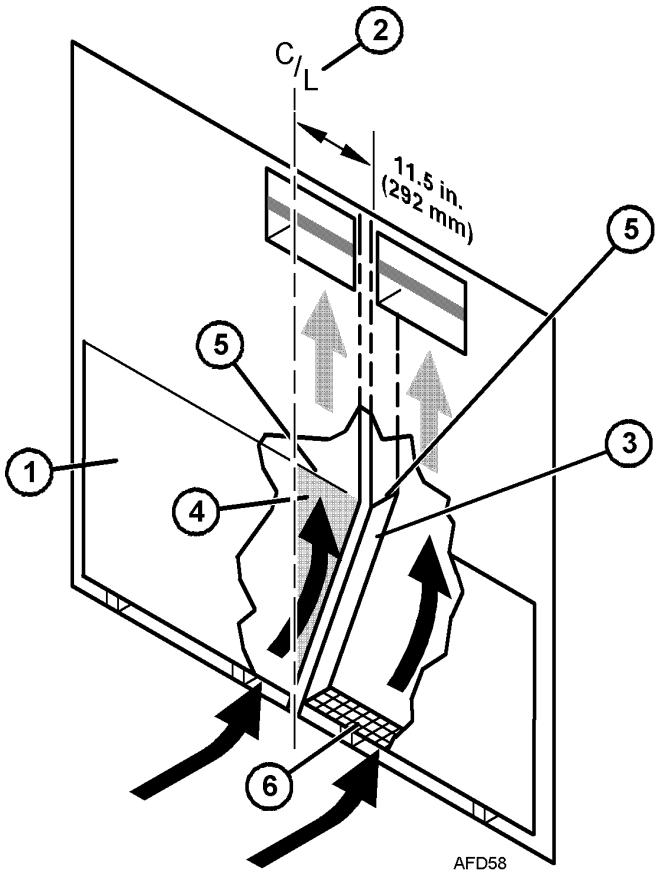
1. A special bulkhead must be installed that allows the return air to be routed back to each roadside and curbside evaporator.
2. From the center line (C/L) of the unit measure 11.5 in. (292 mm) to locate the unit's internal center divider.
3. The bulkhead must have a divider channel that runs from the unit's internal center divider down to the trailer floor. This diagonal partition divider must be insulated with the 2.00 in. (50.8 mm) thick foam insulation supplied in the installation kit.
4. Insulate the entire triangular area, inside the bulkhead, where the air return crosses over into the opposite compartment with the 1.00 in. (25.5 mm) thick foam insulation supplied in the installation kit.
5. All air gaps between the top edge of the bulkhead and the evaporator panel must be sealed completely with foam insulation or caulking.
6. The bulkhead must be equipped with a lower air inlet screen to prevent debris from entering into the air inlet openings.

Center Wall Partition (Detail II)

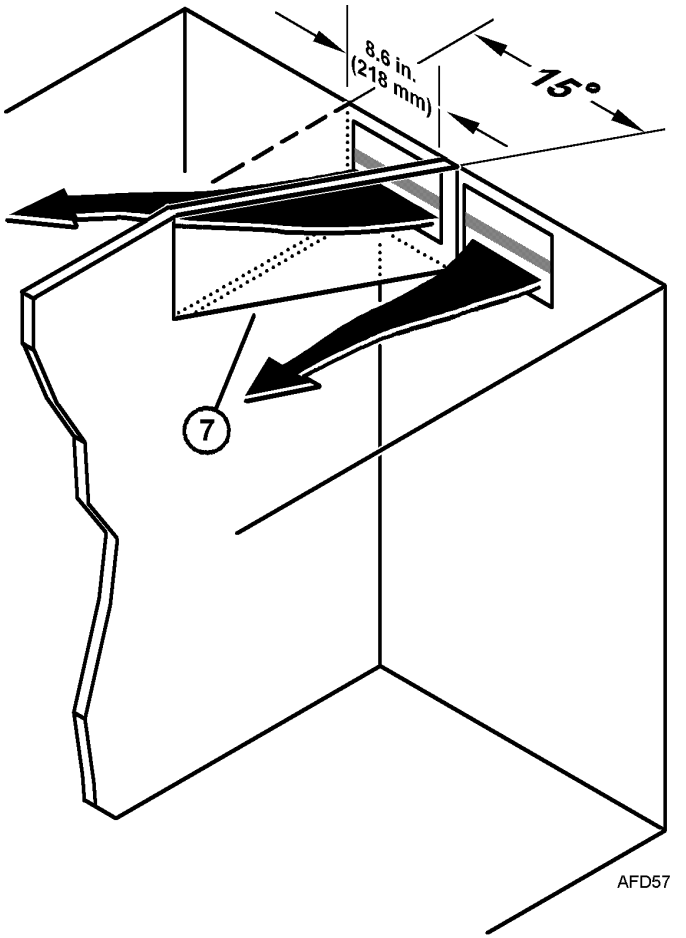
7. A small section of the center partition must be modified to route the air supply from the roadside evaporator to the roadside compartment.

DE Split-Evaporator Installation

I



II



DE Split-Evaporator Installation

Sealing Air Gaps

NOTE: The following areas must be properly sealed to prevent air leakage and allow the unit to operate correctly.

1. ***Area Above the DE Evaporator Section*** - If the remote tubing is routed across the trailer to the curbside compartment, this area requires foam block be cut to fit around the insulated tubing and harness.
2. ***Gap Between Top of Evaporator and Trailer Header*** - This gap (below trailer header and above the evaporator) should be filled with foam insulation or caulking.
3. ***Front Edge of Center Partition*** - Although the front edge of the center wall partition may have a conforming gasket it cannot conform to severe steps anywhere along the bulkhead or above the evaporator. The long foam adhesive backed strip (1.00 in. x 4.00 in.) supplied in the DE installation kit may be used here, if necessary.
4. ***Top of Slanted Center Divider in Bulkhead*** - This area needs gaskets to conform and seal against the bottom of the internal center divider between the two DE evaporator. This prevents air leakage between the two return air areas. Because the evaporators are offset towards the trailer curbside, this center divider is located 11.5 in. (292 mm) to the curbside of the trailer center line.
5. ***Front Wall and Center Divider Interface*** - Special care must be taken because the insides of the trailer walls are not necessarily flat. If the slanted center divider in the bulkhead is not flexible, foam tape and/or caulking must be added to conform to the front wall.
6. ***Trailer Trough Area*** - The center divider in the bulkhead must extend to the bottom of the floor/trough, even though the bulkhead itself must end 6 to 10 in. (152.5 to 254 mm) above the trailer floor. This lower extension of the divider should be flush with the bulkhead surface to make it easy to seal the front edge of the center partition.

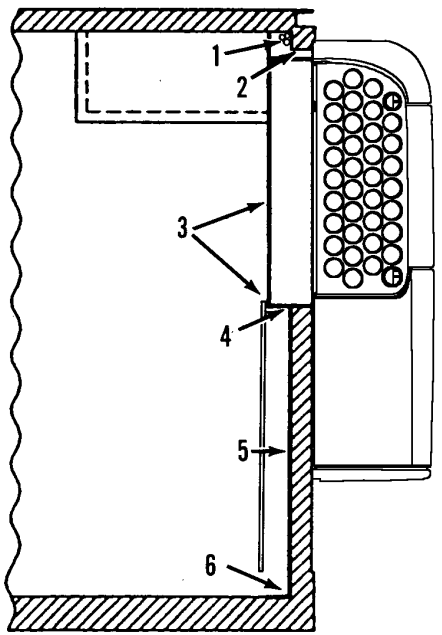
I = Standard Bulkhead

II = Foam Blocks (installer supplied)

III = Full Height Bulkhead

DE Split-Evaporator Installation

I



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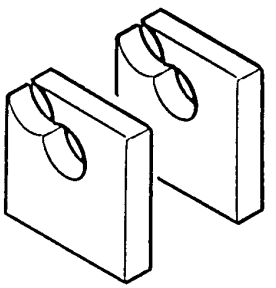
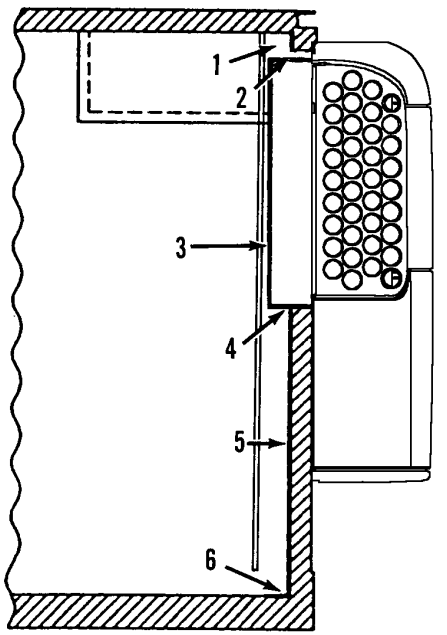


III



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DE Split-Evaporator Installation

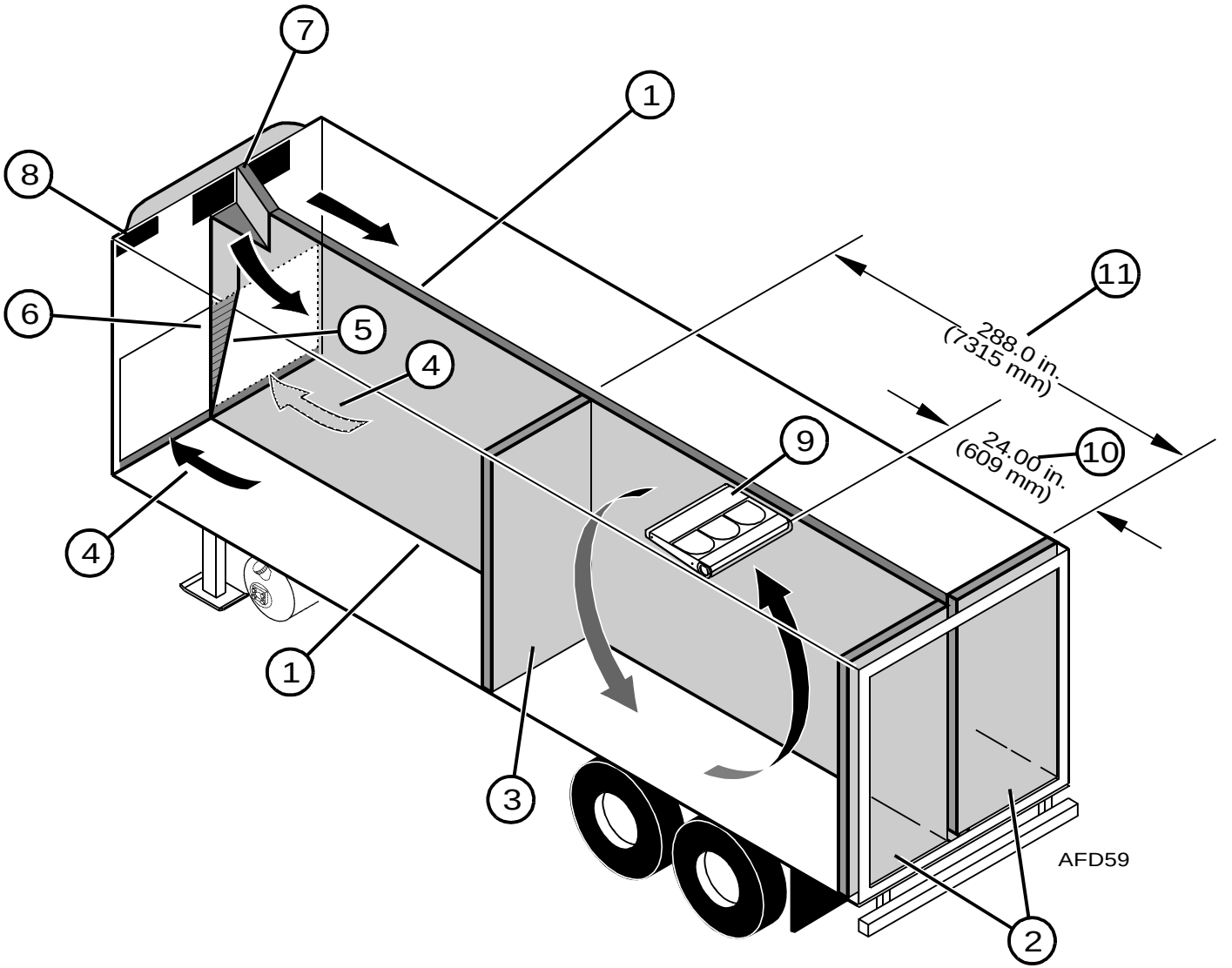
Typical DE Split-evaporator Installation

Only one of many possible configurations is shown for the Spectrum DE application.

NOTE: The Spectrum DE 30-2 does not have the capability for a remote evaporator.

1. Center Divider Partition must seal tight against the floor and ceiling of the trailer.
2. At least one rear bulkhead must always be installed with a frozen compartment.
3. Adjustable Bulkhead (OPTIONAL).
4. The trailer must be split into two separate compartments for proper return air flow.
5. A special diagonal divider channel must be added within the return air bulkhead to separate the roadside and curbside return air flow. This diagonal partition must be insulated with foam at least 2.00 in. (50.8 mm) thick and cover the bulkhead's entire partition.
6. The entire triangular are, inside the bulkhead, where the air crosses over to the opposite compartment must be insulated with at least 1.00 in. (25.4 mm) thick foam insulation.
7. The transition section of the center portion must be provided to accommodate the roadside and curbside air flow outlets. This must be insulated similar to the center wall section.
8. If refrigeration tubes are routed for an optional remote evaporator, the liquid and suction lines must be clamped together for heat exchange.
9. Remote evaporator (OPTIONAL).
10. Minimum distance.
11. Maximum distance.

DE Split-Evaporator Installation



Installing the Rear Remote Controller (Option)

Foamed-In-Place Installation

NOTE: Verify mounting location and all dimensions before installing the remote controller.

A = 69.8 mm (2.75 in.)

B = 196.8 mm (7.75 in.)

DANGER: Do not route electrical harness together with fuel lines as this could cause a fire resulting in death or serious injury!

CAUTION: Do not drill holes into refrigeration, electrical or mechanical components or severe damage to the equipment will result!

Preferred Wire Routing (Steps 1,2, 6-10)

NOTE: The preferred routing of the electrical harness chase and interface harness is from the bottom of the controller box.

1. Connect the harness chase to the bottom of controller while providing a drip loop.
2. Install and route a 1/2 in. CPVC drain hose from the bottom of the controller box out of trailer floor.

Alternative Wire Routing (Steps 3-10)

NOTE: The alternative routing of the electrical harness chase and interface harness is from the side of the controller box.

3. Drill an appropriate size hole in the controller box for the harness chase coupling.
4. Install harness chase coupling.

NOTE: Coupling should not protrude more than 6.4 mm (0.25 in.) inside the controller box.

5. Install cap in bottom of controller box ***before*** foaming trailer wall.
6. Apply chalking to controller box and install securely into trailer wall.

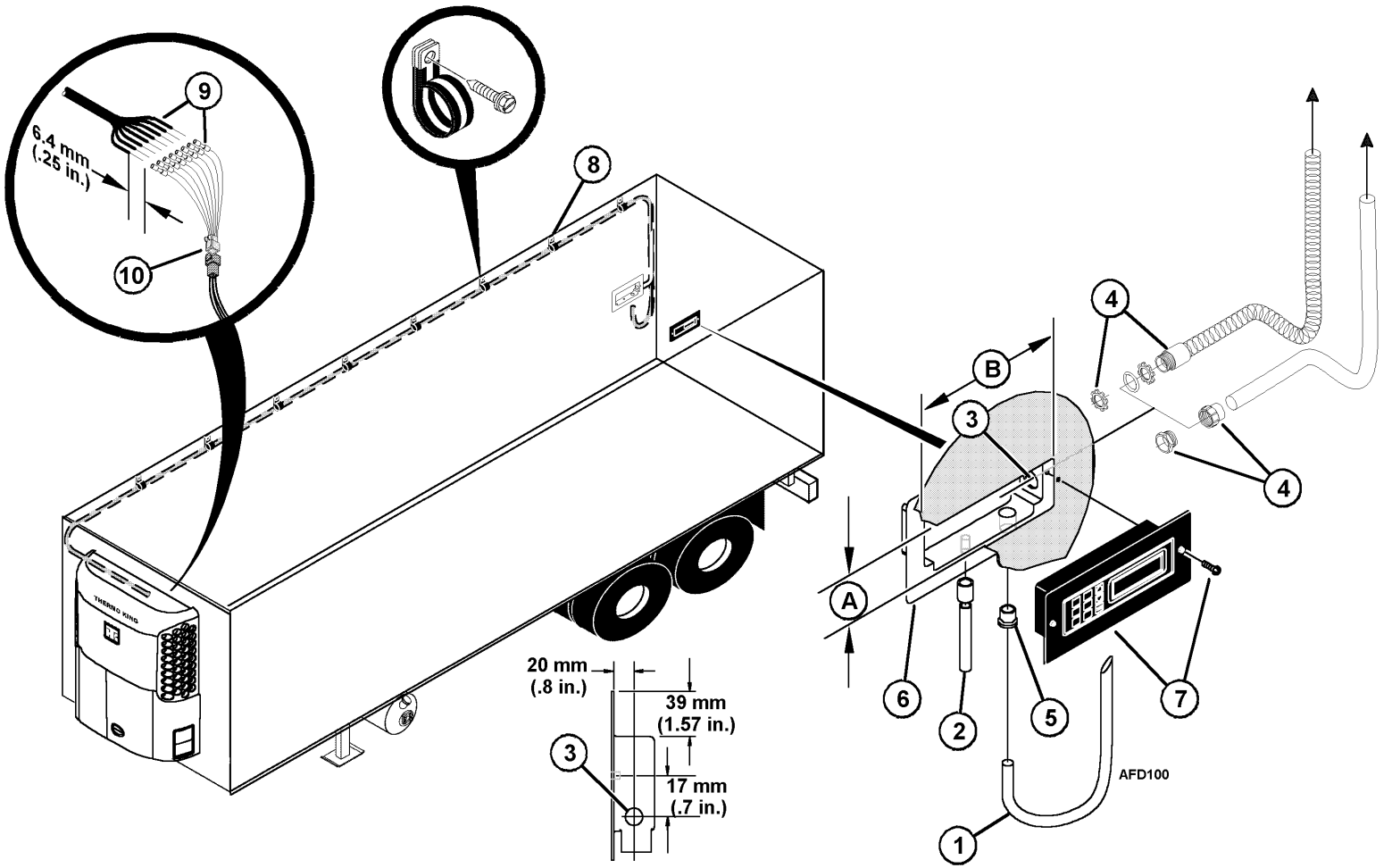
Harness Connections

7. Apply Superlube (or equivalent) to Remote Controller Harness connector and attach securely to back of controller. Route harness through chase. Secure controller to controller box with screws.
8. Route chase and Remote Controller Harness from controller to host unit. Secure with clamps.
9. Cut off excess harness and strip wire ends.
   - Attach the Remote Controller Harness wires to the splice connectors on the Interface Harness.

Remote Controller Harness (with flat 8-PIN connector)	Code	Interface Harness (with 8-PIN connector and splice ends)	Code
PIN 1	BLU	PIN 3	BLU
PIN 2	GRN	PIN 5	GRN
PIN 3	No Connection	PIN 7	No Connection
PIN 4	ORN	PIN 6	ORN
PIN 5	YEL	PIN 4	YEL
PIN 6	BRN	PIN 8	BRN
PIN 7	BLK	PIN 1	BLK
PIN 8	RED	PIN 2	RED

10. Apply Superlube (or equivalent) and securely connect the Interface Harness 8-PIN connector to the mating 8-PIN Remote Controller connector located on the side of the evaporator housing.

Installing the Rear Remote Controller (Option)



Installing the Rear Remote Controller (Option)

Retro-Fit Installation

NOTE: Verify mounting location and all dimensions before installing the

DANGER: Do not route electrical harness together with fuel lines as this could cause a fire resulting in death or serious injury!

CAUTION: Do not drill holes into refrigeration, electrical or mechanical components or severe damage to the equipment will result!

CAUTION: Rubber grommets must be used when routing electrical harnesses through metal holes!

1. Cut opening in trailer wall per dimensions shown.

   A = 203 mm (8.0 in.)

   B = 107.9 mm (4.25 in.)

   C = 38 x 12.7 mm (1.5 x .5 in.)

2. Install and route a 1/2 in. CPVC drain hose and 0.88 O.D. harness chase from the bottom of the controller box out of the trailer.

3. Apply caulking to controller box and install securely in trailer wall.

NOTE: Make sure the drain hose and harness chase are connected properly.

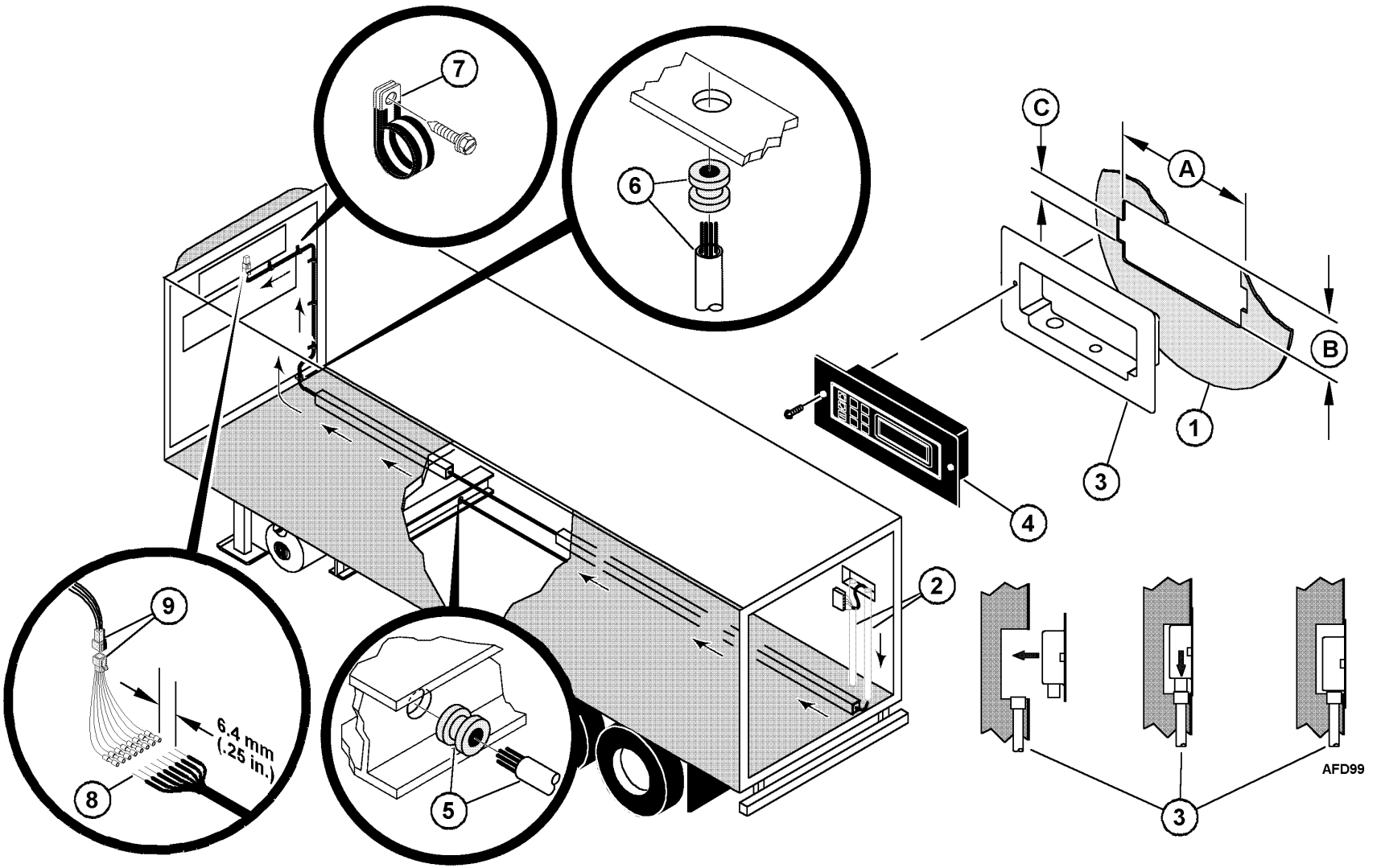
Harness Connections

4. Apply Superlube (or equivalent) to Remote Controller Harness connector and attach securely to back of controller. Route harness through chase. Secure controller to controller box with screws.
5. Route harness under trailer through chase in floor or I-beam crossmembers towards the unit.
6. From inside the trailer, measure and drill an appropriate size hole and route the harness up into the trailer towards the unit.
7. Secure harness to the backside of the unit with clamps.
8. Measure the length of harness required for the harness to connect to the 8-Pin Remote Controller connector that is factory installed on the side of the evaporator housing. Cut off excess harness and strip wire ends. Crimp into existing splice and use heat shrink covering.

Remote Controller Harness (with flat 8-PIN connector)	Code	Interface Harness (with 8-PIN connector and splice ends)	Code
PIN 1	BLU	PIN 3	BLU
PIN 2	GRN	PIN 5	GRN
PIN 3	No Connection	PIN 7	No Connection
PIN 4	ORN	PIN 6	ORN
PIN 5	YEL	PIN 4	YEL
PIN 6	BRN	PIN 8	BRN
PIN 7	BLK	PIN 1	BLK
PIN 8	RED	PIN 2	RED

9. Apply Superlube (or equivalent) and securely connect the Interface Harness 8-PIN connector to the mating 8-PIN Remote Controller connector factory installed on the unit.

Installing the Rear Remote Controller (Option)



Installing the Door Switch (Option)

When installing CargoLink wireless door switches, see TK 55151 CargoLink Installation Manual.

NOTE: These instructions (pages 56-59) are intended as reference guide only to assist with a typical hard wired door switch installation. Your installation may be different depending on the trailer, the amount and types of doors and the customers particular requirements.

Door Switch Components

The door switch consists of a magnet, a switch, non-magnetic mounting hardware and a interface harness to connect to the host unit.

- The ***magnet*** is always mounted on the door.
- The ***switch*** (with harness) is always mounted to a stationary location.
- Two short ***interface harnesses*** are available depending on your particular kit. One allows a single door switch in a single zone to activate a unit shutdown. The other allows two door switches in the same zone to each activate a unit shutdown.

Non-magnetic mounting hardware is included to install the switches. If alternate hardware is used it must also be non-magnetic or the door switch will not operate properly.

Installer is to supply and fabricate the harness connecting the interface harness to the door switch per the table below. The harness should be 18 AWG or better, 3 wires, color coded RED, BLACK and WHITE.

Interface Harness Wiring	Door Switch Wiring
RED = (12 Vdc) POWER	RED = (12 Vdc) POWER
BLACK = (CH) GROUND	BLACK = (CH) GROUND
WHITE = (DS) OUTPUT	WHITE = (DS) OUTPUT

Mounting Locations

The door switch can be mounted on the inside or outside of either swing out or roll-up doors and can be mounted in various positions to accommodate particular applications.

IMPORTANT INSTALLATION NOTES:

- The door switch must be installed away from traffic (i.e. forklifts) or protected from it.
- The door switch and magnet must be installed parallel to each other, not perpendicular. Long cross hair aligns to long cross hair.
- It is important that a maximum gap of 12.7 mm (0.50 in.) is maintained between the door switch and the magnet. Shims may be required and must be a non-magnetic material (aluminum, wood, plastic, etc.) or the door switch will not operate properly.

(Detail A) Ceiling Mounted

1. Mount the **magnet** flush with the top edge of the door and secure with supplied hardware.
2. Close the door and mount the **switch** to the door sill parallel with the magnet, being sure the “cross hairs” are aligned and that the maximum gap of 12.7 mm (0.50 in.) is maintained.

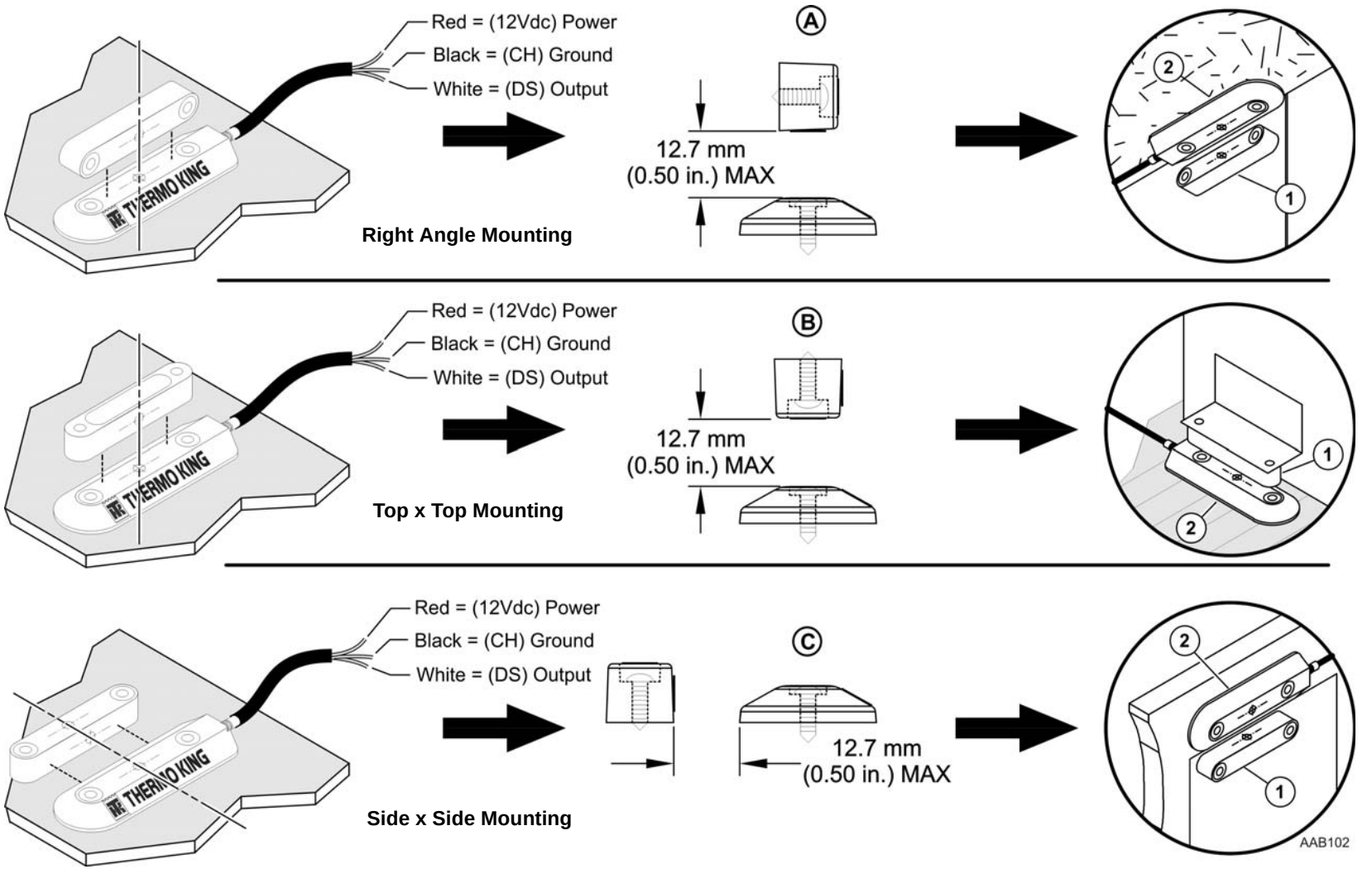
(Detail B) Floor Mounted

1. Mount the **magnet** flush with the bottom edge of the door and secure with supplied hardware.
2. Close the door and mount the **switch** to the floor parallel with the magnet, being sure the “cross hairs” are aligned and that the maximum gap of 12.7 mm (0.50 in.) is maintained.

(Detail C) Outside Door Installation

1. Mount the **magnet** flush with the top edge of the door and secure with supplied hardware.
2. Close the door and mount the **switch** to the door sill parallel with the magnet, being sure the “cross hairs” are aligned and that the maximum gap of 12.7 mm (0.50 in.) is maintained.

Installing the Door Switch (Option)



Installing the Door Switch (Option)

Contact your Thermo King Dealer for specific part numbers.

NOTE: The Door Switch Harness Connectors are located at the rear of the unit (See DETAIL C).

Single Door Switch Activation / Single Zone (Detail A)

1. Attach the interface harness to the door switch connector located at the rear of the unit.
2. Route a 3 wire harness **(Installer Supplied)** from the interface harness to a **single** door switch. Connect matching wires per the table below **(RED/RED, WHITE/WHITE, BLACK/BLACK)** to each door switch using splice connectors. Crimp splice connectors securely and apply heat with a heat gun.

Interface Harness Wiring	Door Switch Wiring
RED = (12 Vdc) POWER	RED = (12 Vdc) POWER
BLACK = (CH) GROUND	BLACK = (CH) GROUND
WHITE = (DS) OUTPUT	WHITE = (DS) OUTPUT

3. All harnesses should be installed, routed and properly secured to protect from damage.

Multiple Door Switch Activation / Single Zone (Detail B)

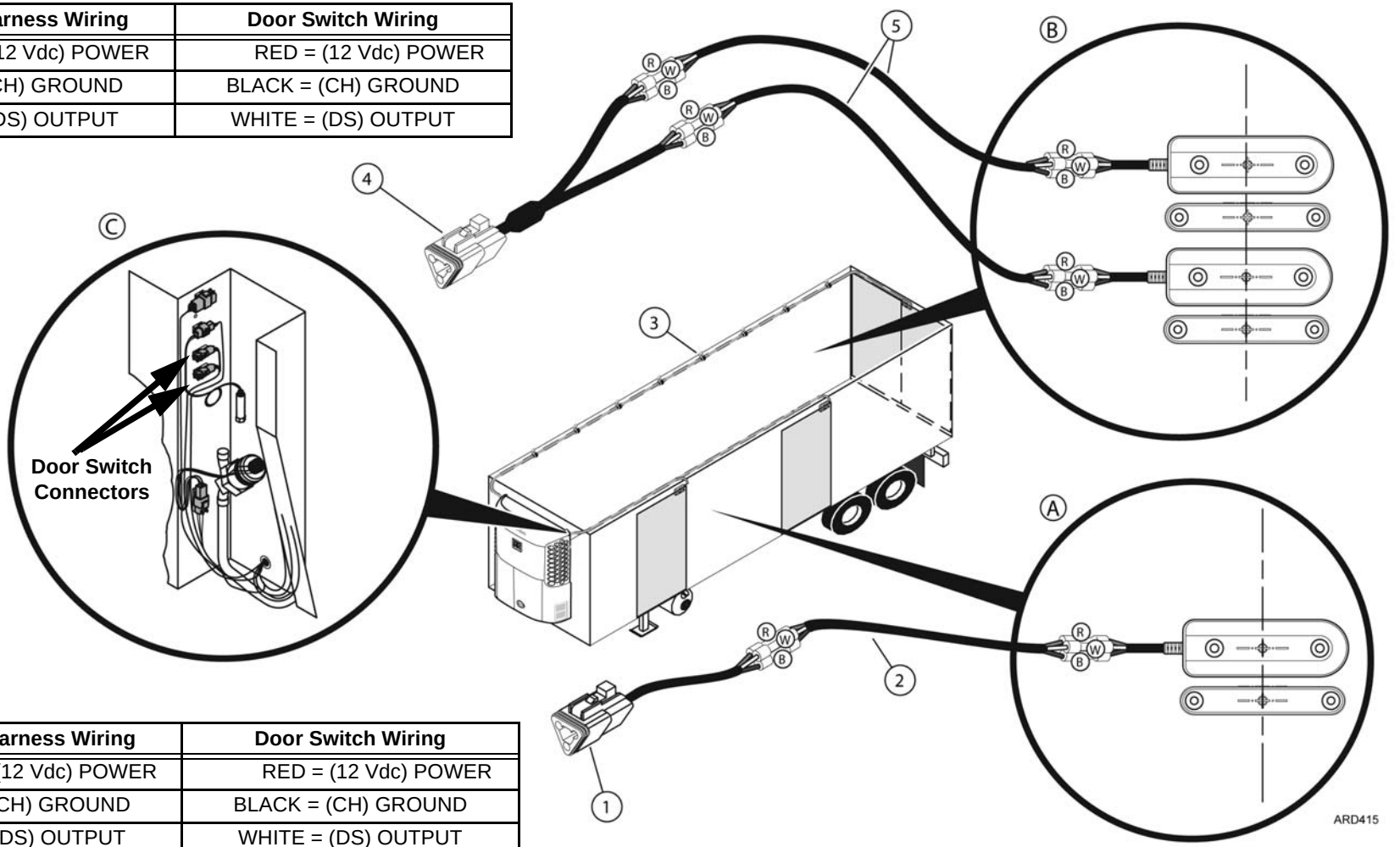
4. Attach the interface harness to the door switch connector at the rear of the unit.
5. Route a 3 wire harness **(Installer Supplied)** from the interface harness to **each** door switch - **Maximum Two Doors.** Connect matching wires per the table below **(RED/RED, WHITE/WHITE, BLACK/BLACK)** to each door switch using splice connectors. Crimp splice connectors securely and apply heat with a heat gun.

Interface Harness Wiring	Door Switch Wiring
RED = (12 Vdc) POWER	RED = (12 Vdc) POWER
BLACK = (CH) GROUND	BLACK = (CH) GROUND
WHITE = (DS) OUTPUT	WHITE = (DS) OUTPUT

6. All harnesses should be installed, routed and properly secured to protect from damage.
7. Operate unit and verify door switch operation.

Installing the Door Switch (Option)

Interface Harness Wiring	Door Switch Wiring
RED = (12 Vdc) POWER	RED = (12 Vdc) POWER
BLACK = (CH) GROUND	BLACK = (CH) GROUND
WHITE = (DS) OUTPUT	WHITE = (DS) OUTPUT



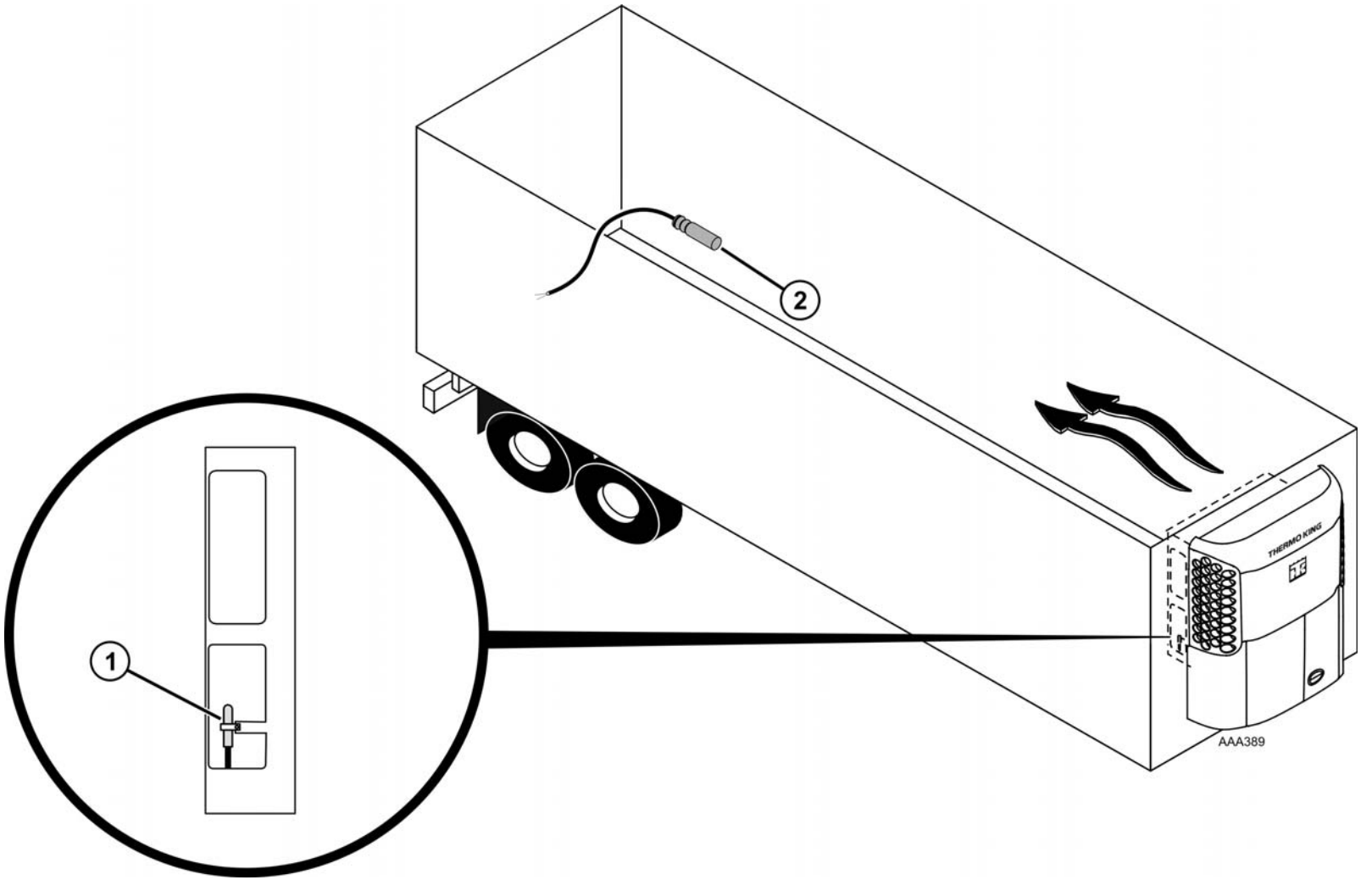
Interface Harness Wiring	Door Switch Wiring
RED = (12 Vdc) POWER	RED = (12 Vdc) POWER
BLACK = (CH) GROUND	BLACK = (CH) GROUND
WHITE = (DS) OUTPUT	WHITE = (DS) OUTPUT

CargoWatch™ Sensor Locations (Option)

Sensor locations for Domestic Applications as required by customer.

1. Sensor #1 is located in the evaporator side return opening near unit return air sensor (factory installed).
2. Sensor #2 as required by customer.

CargoWatch™ Sensor Locations (Option)



Connecting the CargoWatch™ Sensors (Option)

NOTE: ONLY CargoWatch Sensors Can Be Used

CONNECTING SENSORS

NOTE: The sensor are not polarity sensitive.

1. Locate the CargoWatch **Sensor Harness** behind the evaporator access panel.
2. Unplug the connector from the harness.
3. Removes orange end from connector.
4. Remove only the plugs from the connector holes for the sensors you are connecting. Unused holes must remain plugged.

SENSOR	PLUGS
1	#1 and #12
2	#2 and #11
3	#3 and #10
4	#4 and #9
5	#5 and #8
6	#6 and #7

5. Insert **WHITE** pin connector and wire into correct connection until it locks into position **(Detail I)**. The wire side of the connector is shown.

SENSOR	PLUGS
1	White into #1
2	White into #2
3	White into #3
4	White into #4
5	White into #5
6	White into #6

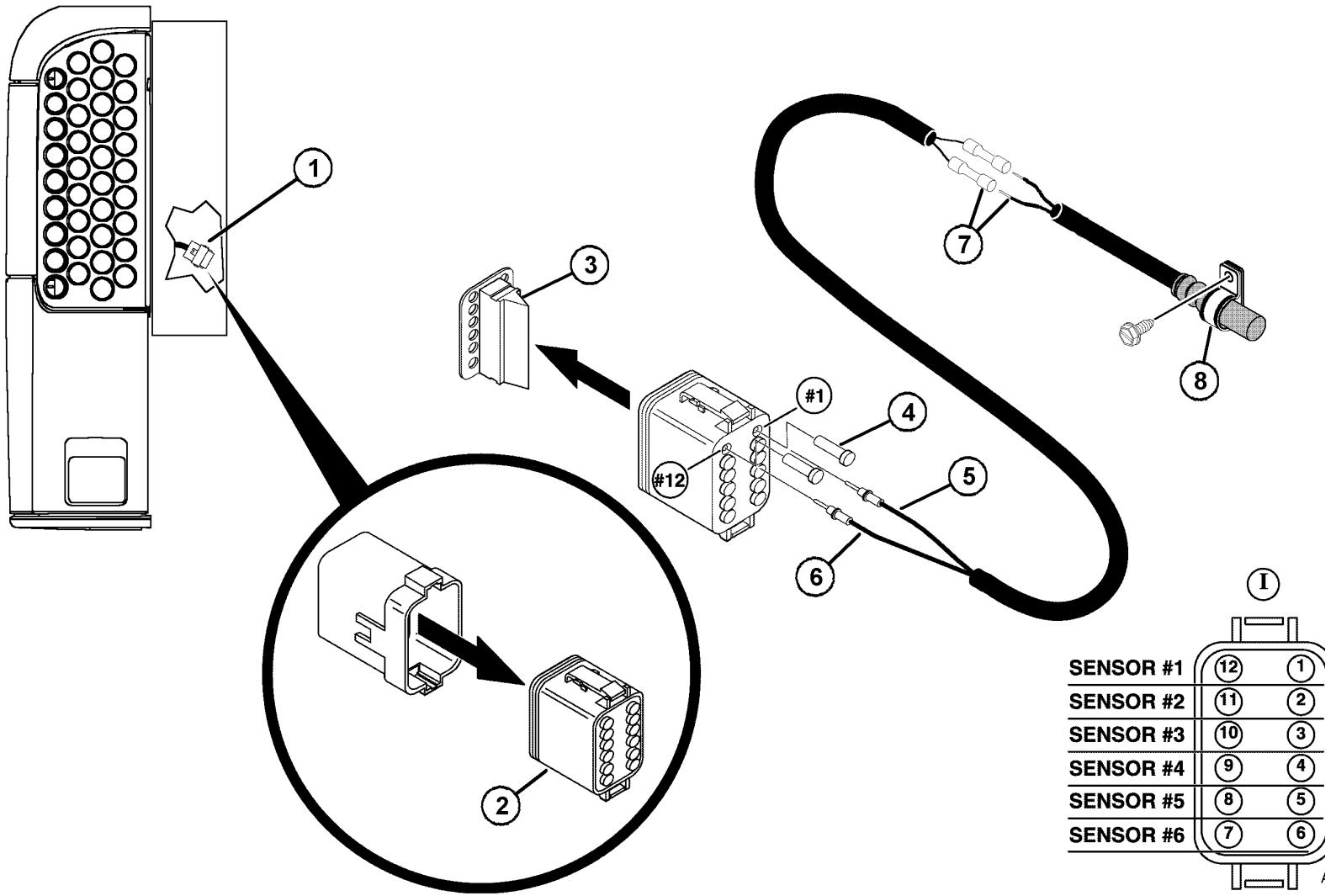
6. Insert **BLACK** pin connector and wire into correct connection until it locks into position **(Detail I).** The wire side of the connector is shown.

SENSOR	PLUGS
1	Black into #12
2	Black into #11
3	Black into #10
4	Black into #9
5	Black into #8
6	Black into #7

   Reinstall orange end **(3)** back onto connector **(2)**, apply a light coating of Superlube to electrical connections and plug sensor back into mating connector on the Sensor Harness **(1)**.

7. Connect the CargoWatch Sensor Harness to the sensor using the splice connectors. Crimp splice connectors securely and apply heat with a heat gun. ***NOTE: The CargoWatch Sensor wires are not polarity sensitive.***
8. Secure sensor with appropriate clamps.

Connecting the CargoWatch™ Sensors (Option)



Installing the Battery

CAUTION: Set all electrical controls to the OFF position before connecting the battery to prevent the unit from starting!

CAUTION: Always wear protective clothing, gloves and eye wear when handling and installing batteries!

CAUTION: Cover battery terminals to prevent accidental shorting during battery installation!

NOTE: Thermo King units are designed for one 12 volt, group 31 battery. The battery must be suitable for deep cycling, heavy duty and rated with a minimum of 95 amp/hr.

Standard Battery Hold Down Bracket

1. Install battery and secure with hold down bracket and rods. Tighten the two battery hold down rods to 2.25 N•m (20 in -lbs.). ***DO NOT over tighten as this may crack or distort the battery!***

NOTE: One of the hold down rods must fit into the notch located on the channel under the battery. You may have to move the electrical harness slightly to access this notch.

2. Install ***positive +*** battery cable on the positive battery post ***first*** to minimize accidental electrical shorting.
3. Install ***negative -*** battery cable on negative battery post ***second*** to minimize accidental electrical shorting.

Optional Heavy Duty Battery Hold Down Bracket

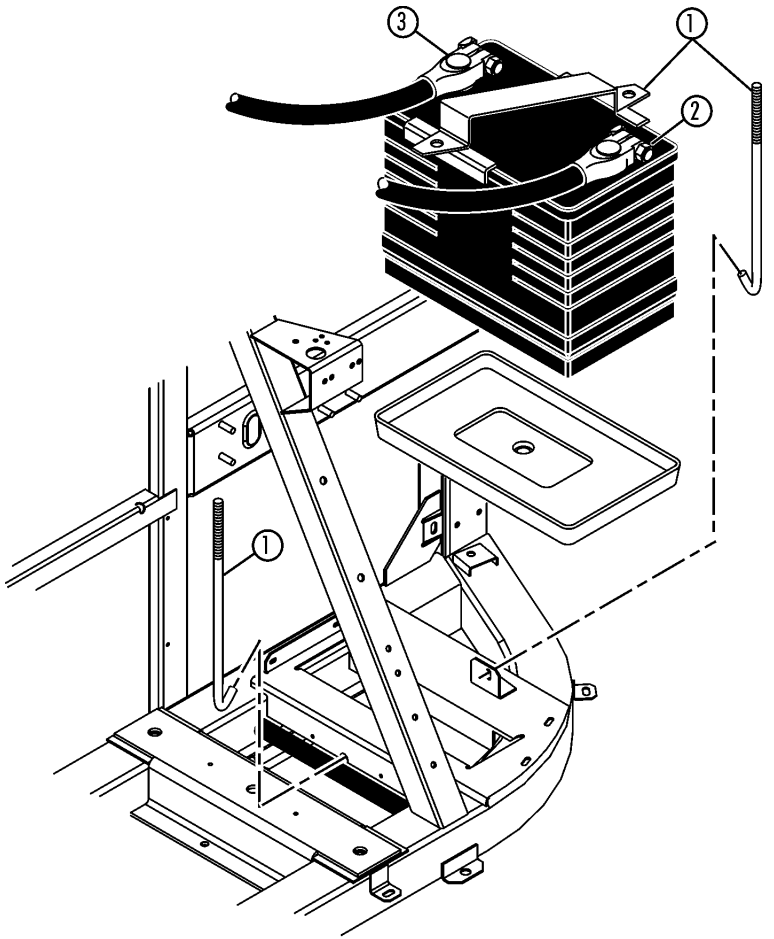
1. Install the battery into the tray.
2. Install the battery hold down bracket and rods. Loosely install hardware onto the rods.

NOTE: One of the hold down rods must fit into the notch located on the channel under the battery. You may have to move the electrical harness slightly to access this notch.

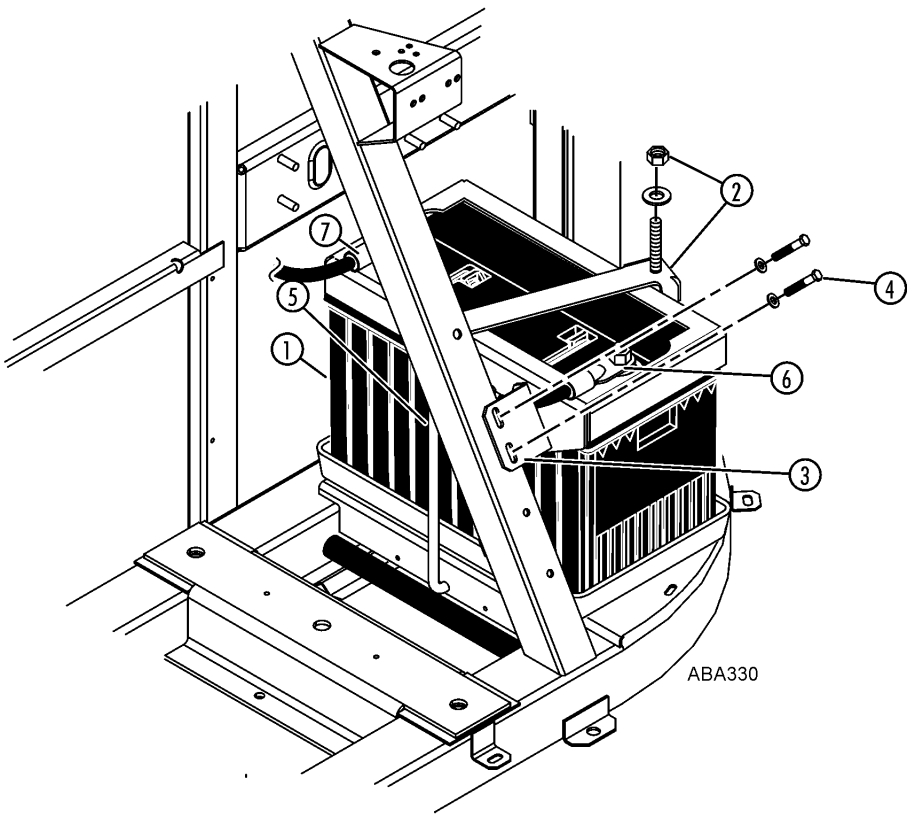
3. Align the tab of the battery hold down bracket over the two existing holes in the frame support channel.
4. Install the two mounting bolts and flat washers through the hold down bracket and support channel. Torque hardware to 13.5 N•m (120 in-lbs).
5. Tighten the two battery hold down rods to 2.25 N•m (20 in -lbs.) ***DO NOT over tighten as this may crack or distort the battery!***
6. Install ***positive +*** battery cable on the positive battery post ***first*** to minimize accidental electrical shorting. Tighten securely.
7. Install ***negative -*** battery cable on negative battery post ***second*** to minimize accidental electrical shorting. Tighten securely.

Installing the Battery

Standard
Battery Hold Down Bracket



Optional
Heavy Duty Battery Hold Down Bracket



Installing the Bottom Pan

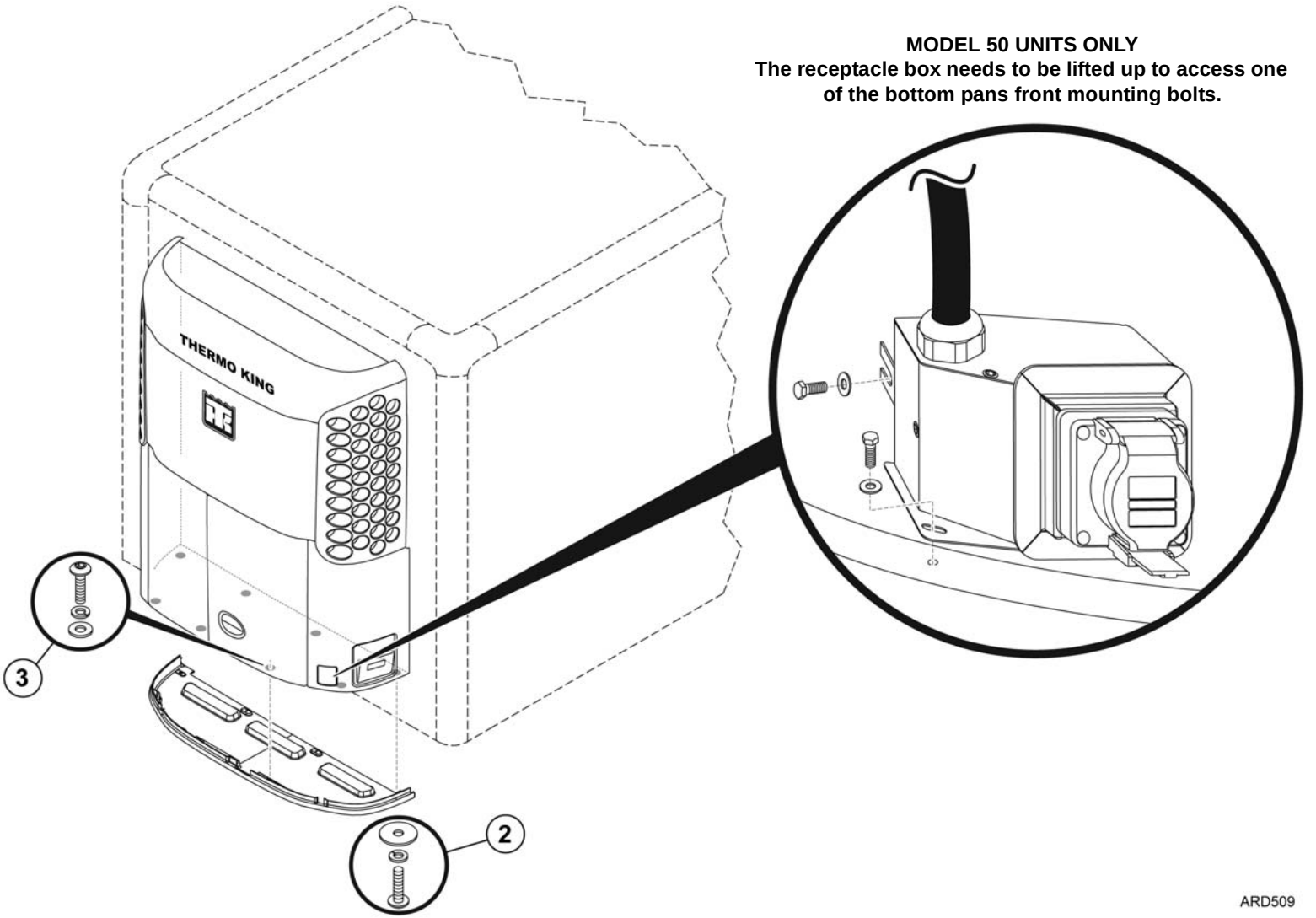
Installation

NOTE: Anti-seize lubricant applied to the threads of the stainless steel mounting hardware is recommended.

1. Remove the four **1/4-20 x .75** screws, lock washers and flat washers attached to the front of the bottom pan. These will be re-installed in Step #3.
2. **Rear Mounting Bolts** - Position the bottom pan under the unit and align the four holes in the rear of the bottom pan with the four holes in the rear of the frame.
    - From under the unit, attach the rear of the bottom pan with the four 1/4-20 x 1.00" torx head screws, 1/4” lock washers and 1.00" diameter flat washers supplied in the installation kit.
3. **Front Mounting Bolts** - Open the center curbside and roadside doors to access the bottom pan front mounting tabs.
    - **MODEL 30 Units** - From inside the unit, secure the bottom pan with the four 1/4-20 x .75" screws, lock washers and flat washers removed in Step #1.
    - **MODEL 50 Units** - The receptacle box needs to be lifted up to access one of the bottom pans front mounting bolts.
        - Remove the front bolt securing the receptacle box to the frame. Loosen the rear bolt securing the receptacle box to the control box. Lift the receptacle box up. From inside the unit, secure the bottom pan with the four 1/4-20 x .75" screws, lock washers and flat washers removed in Step #1.
4. Torque all eight bottom pan mounting bolts to 30 in-lb.
    - **MODEL 50 Units** - Reinstall the receptacle box securely.
5. Close and secure all doors.

Installing the Bottom Pan

MODEL 50 UNITS ONLY
The receptacle box needs to be lifted up to access one of the bottom pans front mounting bolts.



STOP!

SPECTRUM DE
MULTI-TEMPERATURE

SYSTEMS ONLY!

TO INSTALL THE SPECTRUM REMOTE EVAPORATORS AND COMPLETE THIS INSTALLATION REFER TO:

INSTALLATION MANUAL-B

TRAILER EDITION
SPECTRUM SR-2 MULTI-TEMPERATURE SYSTEMS

TK 53509-2-IM

STOP

Caution

Thermo King Multi-Temp host units are shipped with a 35 kPa (5 psi) holding charge of R-404A. This holding charge of approximately 1 kg (2 lbs.) of refrigerant must be recovered.

SEVERE COMPRESSOR DAMAGE will result from operating the engine before completing the system installation which includes: installing the components, recovering the host unit holding charge, releasing the remote unit holding nitrogen charge, soldering the refrigeration lines, leak testing the system, evacuation and clean-up, and charging the system. (SEE INSTALLATION MANUAL-B)

Recover Refrigerant

At Thermo King, we recognize the need to preserve the environment and limit the potential harm to the ozone layer that can result from allowing refrigerant to escape into the atmosphere.

We strictly adhere to a policy that promotes the recovery and limits the loss of refrigerant into the atmosphere.

Providing equipment and services to manage controlled-temperature environments for food and other temperature-sensitive products, our Climate Control Technologies sector encompasses both transport and stationary refrigeration solutions. Our product brands include Thermo King®, a world leader in transport temperature control systems, and Hussmann®, a manufacturer of refrigeration and food merchandising equipment.

www.thermoking.com www.hussmann.com www.ingersollrand.com

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